Traffic Engineering

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COVER: Scale model of a level intersection (nearing completion) of Hollywood-Santa Ana Parkway (NW-SE) with Arroyo-Seco Harbor Parkway (foreground), and multiple overpasses at Figueroa Street.

Traffic Engineering is that phase of engineering which deals with the planning and geometric design of streets, highways, and abutting lands, and with traffic operation thereon, as their use is related to the safe, convenient, and economic transportation of persons and goods.

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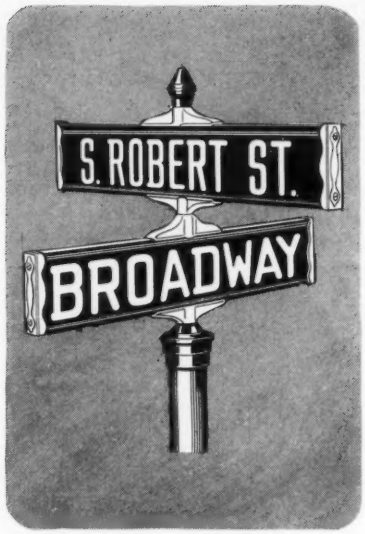
Your streets have names... identify them proudly



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LETTERS TO THE EDITORS

Traffic Actuated Signals

In a letter to the editor in the April 1950 issue of "Traffic Engineering" magazine, Mr. Edmund R. Ricker, Traffic Engineer of New Haven, Connecticut, writes that the date of April 10, 1928 of the first Traffic-Actuated Signal in New Haven, set forth in my article "Traffic-Actuated Signals Had Premier in Baltimore," is incorrect.

This date, April 10, 1928, was given to me for publication purposes by the Automatic Signal Division of Eastern Industries, Inc., in a letter to me dated July 14, 1949. Inasmuch as the first installation of Traffic-Actuated Control in New Haven was made by Automatic Signal Corporation, and with Automatic Signal equipment, this reliable company would certainly not have given me an incorrect date.

With due respect for New Haven—a wonderful city—Baltimore still retains the credit for the first public installation of Traffic-Actuated Control, along with the first highway detector to operate vehicular (trackless) signals, May 1926; the first double filament traffic signal lamp, 1932; the first Traffic-Actuated Speed Control Signal, 1936; the first aircraft alternately flashing position light, 1940; and the first railroad in 1827!

CHARLES ADLER JR.
Consulting Signal Engineer

Mt. Royal Station
B. & O. Railroad
Baltimore, Maryland

The date of April 10, 1928, cited by Mr. Adler as the first installation of Electro-Matic control is the date of the *formal* opening at Orange and Humphrey Streets in New Haven, Connecticut, on which date it became a continuously operating unit of New Haven's signal system. This date, which we commonly think of in connection with official beginning of traffic-actuated control, was furnished to Mr. Adler by the undersigned in answer to his request of July 12, 1949, for the date and location of our first installation of traffic-actuated signals.

However, the date of *first placing in public use* of Electro-Matic equipment is November 2, 1927, as cited by Mr. Ricker, this being the date when the control equipment was turned on and operated for the first time at a public street intersection. The system was not placed in continuous use until the date cited by Mr. Adler.

PAUL L. GREEN
Sales Manager

Automatic Signal Division
East Norwalk, Connecticut

Free Parking Lots

Please advise how it is possible to place 2,000 cars in 76,000 square feet of parking lots as reported on page 244, March 1950 issue.

M. ALFRED KAEHRLE
Engr. of Location & Des.

State Highway Department
Hartford, Connecticut

● The way we see it, Silver Springs is expecting a large shipment of foreign (midget) automobiles, requiring only 38 square feet of parking stall, or someone misplaced a numeral which would show a more reasonable allocation of 760,000 square feet.—ED.

Cataphote Announces New Plant

The Cataphote Corporation, Toledo, Ohio, announce the establishment of a new manufacturing plant, located in Rankin County at an Industrial development known as Flowood, suburb of Jackson, Mississippi. The plant is presently engaged in volume production of glass spheres and beads for highway striping, highway signs, advertising signs, house numbers and airport markings. Deliveries of beads are available for both domestic and export markets. Mr. C. W. Hudson is plant manager of Cataphote's Jackson location which is employing approximately 25 people.

In addition to this glass bead and sphere operation, Cataphote in Toledo manufactures street name signs and posts, danger signals, highway signs and markers, reflectorized signs, and a variety of other sign requirements for City, County and State use. A new catalog of the complete line has recently been completed and is available on request.

AGAIN IT'S DUAL AUTOMATICS *for low-cost maintenance!*

CHECK THIS TYPICAL RECORD IN AN IOWA CITY

WESTERN UNION

1206

CHECK

ACCOUNTING INFORMATION

TIME FILED

CLASS OF SERVICE DESIRED

DOMESTIC		CABLE	
TELEGRAM		ORDINARY	
DAY LETTER		URGENT RATE	
SERIAL		DEFERRED	
NIGHT LETTER		NIGHT LETTER	

Patron should check class of service desired; otherwise the message will be transmitted as a telegram or ordinary cablegram

Send the following telegram, subject to the terms on back hereof, which are hereby agreed to

DUAL RECORDS FOR THE CITY OF FORT DODGE, IOWA, SHOW LESS THAN 11 CENTS PER METER PAID FOR MAINTENANCE AND REPAIR PARTS IN 1949.

FORT DODGE HAS 600 DUAL AUTOMATICS TODAY, HAVING INSTALLED 127 IN 1946; ADDED 440 IN 1947; AND PURCHASED 33 MORE IN 1948.

ALL PROSPECTIVE PURCHASERS OF PARKING METERS SHOULD BE INTERESTED IN THESE TRUE FACTS ABOUT A TYPICAL LOW COST DUAL OPERATION.

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Get *all* the facts on these versatile, long-lived meters. Send for Bulletin DU-504 on Dual *Gearshift* Automatics; Bulletin DU-505 on Duals for *off-street* parking.

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A subsidiary of The Union Metal Manufacturing Company

Canton 2, Ohio

For the NEWEST features... **LOOK TO DUAL** The ORIGINAL Parking Meter

...YOUR BEST ANSWER TO EVERY PARKING PROBLEM

Frankly Speaking

THROUGHOUT the Country there is a vast amount of traffic information and experience that would be of great help to traffic engineers if it were only re-assembled and distributed. It is in the hands of Official Departments, Public Utility Organizations, Business Houses, and similar organizations and agencies.

At the same time we have, in the Institute of Traffic Engineers, Committees working on the assembling of such information and experiences. They are looking for just the kind of information that is available from these sources if it can be properly requested. Yes, questionnaires are sent out to such agencies, but they are *questionnaires* and their mortality rate is high.

The big difficulty is that the personal interest in providing the information is not developed on the part of those who have it. We need a local medium between the National Committee that wants the information and the local agencies that have it. This medium should be sufficiently related to the general program of the Institute to understand the National need and sufficiently close to the local situation to receive the understanding attention of those who have the information and will provide it to local people whom they know.

Here is where Local Sections should be able to render an outstanding service to the Institute. They fit that pattern very closely. However, we can not expect them to take the initiative. That must be provided by the Committees that know what they want to obtain.

Let us suppose, for example, that one of our Committees should wish to gather information concerning the off-street parking provisions of a large number of retail merchants and the adequacy of the facilities that have been provided. A questionnaire sent out "cold" by the Committee to a large number of merchants who, perhaps, have never heard of the Committee, might not bring many replies. However, through Local Section members of the Institute it might easily be possible to obtain the information from several representative merchants known to have such facilities. These local members could easily make the contacts and undoubtedly obtain better information than any questionnaire could possibly provide from practically all of the merchants approached.

True, this plan would require each Committee to get an early start on its program and make early contacts with Local Sections. In turn, the Sections would have to take some time to gather the information. But isn't it worth while if it will provide more and better information and, at the same time, give our Sections added activity and incentive?

How about starting this plan in our 1950-51 program?

Earle Reeder

Director

JOE PRISMO Points the way!

Joe Prismo points the way to better highway markings with the PRISMO LIFE-LINE. Joe Prismo points the way to better reflective coatings for signs with the PRISMO SIGN KIT.

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Write today for fully informative bulletins on the many uses of Prismo, the sphere of safety.

THE LONGEST LASTING CENTER LINE ON ANY HIGHWAY IS THE PRISMO LIFE-LINE

PRISMO SAFETY CORPORATION • HUNTINGDON, PA.

The Postcard Method of O. and D. Surveys in New York State

By Charles R. Waters (Mem., ITE)
District Engineer, New York State Dept. of Public Works, Buffalo, N. Y.

WHEN New York State initiated its urban arterial route planning program, the men charged with the progress of the work were faced with a problem of unusual magnitude. It was necessary to conduct origin and destination studies and volume counts in more than *60 cities* of all sizes, types and locations; using personnel almost entirely without experience in this work and woefully limited in numbers. In most cases, no employees could be regularly assigned to urban planning surveys and the data had to be procured and analyzed by engineering employees temporarily diverted from their usual duties.

No unnecessary delay could be tolerated. Automobile registration was rising by leaps and bounds, and the arterial routes of the urban areas were bearing the brunt of the increase. The cities of New York State are relatively old and their streets are usually more restricted and inadequate than those of the newer cities of the West. Neglect during the years of depression and war had taken its toll; intolerable congestion and structural failure were widespread. It was imperative that the planning phase be rapidly progressed, so that active construction could soon be begun, at least in the most crucial areas.

Extensive studies were made of various types of origin and destination surveys with the all-important elements of time and personnel kept constantly in view. The postcard method was finally decided upon as the most practical under the conditions. Experience has proven this decision a wise one, at least under the circumstances prevailing in this state.

Surveys have now been completed in almost all New York State's 60-odd cities. In District No. 5, comprising the four counties of extreme western New York, eight postcard surveys and one driver-interview survey have been conducted. These studies were made under the author's direction and covered ten cities with populations ranging between 10,000 and 600,000. They furnish an excellent basis for a study of traffic survey methods as applied to cities of widely varying character.

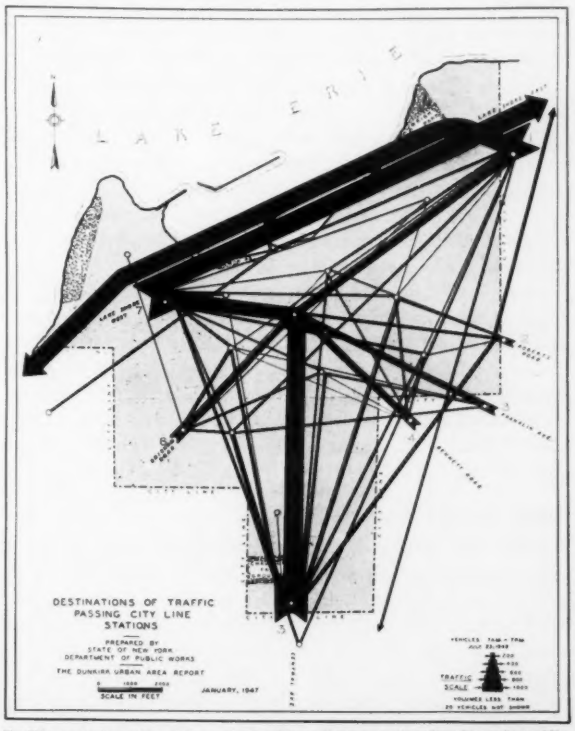
Advantages and Disadvantages

The postcard method has certain inherent weaknesses. Every method of O & D study has some defect because they all depend on a sampling process, and none of them cover the travel habits of each individual motorist. The driver interview type is the nearest approach to complete coverage, but its accuracy is usually hampered by the congestion it may induce and by lack of experienced interviewers.

The postcard survey has the following basic shortcomings:

1. A much better return is obtained from drivers engaged in professional or executive pursuits than from industrial workers. Care in station location and zoning does much to offset this distortion.
2. Heavy truck and through passenger traffic, not having much interest in local problems, frequently does not provide a good return. We have handled this problem by substituting driver interviews at stations where this type of traffic is a significant factor; as, for instance, in the city of Niagara Falls.
3. It is sometimes difficult to include all important vehicle movements, especially in a large city. This can be overcome by providing enough stations and locating them with care. Station locations must be thoroughly studied prior to the survey.

Our experience indicates that the postcard method has a number of very practical advantages, which more than counter-balance its defects. The time-saving element has already been mentioned. The Buffalo Urban Area Plan was


LAKE ERIE
DESTINATIONS OF TRAFFIC PASSING CITY LINE STATIONS
PREPARED BY STATE OF NEW YORK DEPARTMENT OF PUBLIC WORKS
THE DUNKIRK URBAN AREA REPORT
JANUARY, 1947
SCALE IN FEET
TRAFFIC SCALE

Traffic entering the city on Lake Shore Drive is largely through-traffic. Traffic entering the city at other points is almost entirely destined for the downtown area.

3 | NEW YORK STATE TRAFFIC SURVEY | O | D | S

Trip is in Direction Traveling When Card Was Received

Where did this trip START?

If in Lockport (Write in Number and Name of Street, or Nearest Intersection, or Plant, or Well-known Building)

If outside Lockport (Write in Locality and State)

Trip is in Direction Traveling When Card Was Received

Where did this trip END?

If in Lockport (Write in Number and Name of Street, or Nearest Intersection, or Plant, or Well-known Building)

If outside Lockport (Write in Locality and State)

Routes followed

(Write in Names of Major Streets, or Route Numbers, in the order traveled, as at near Lockport on this trip)

Check One (Only) In Each Group

DIRECTION OF TRIP
1. ☐ From Home Garage
2. ☐ To Home Garage

1. ☐ Passenger Car
2. ☐ Light Truck
3. ☐ Heavy Truck

1. ☐ Work
2. ☐ Shopping
3. ☐ Other

1. ☐ Parked at Curb
2. ☐ Parking Lot
3. ☐ Storage Garage
4. ☐ Did Not Park

Parked for Hrs.

THANK YOU!

A.M. | P.M. | NEW YORK STATE TRAFFIC SURVEY | S O D

WHERE DID THIS TRIP START?

If in Dunkirk
Write in number and name of street or nearest street intersection, or Plant, or Well-known Building

If Outside Dunkirk
Write in Locality, State

WHERE DID THIS TRIP END?

If in Dunkirk
Write in number and name of street or nearest street intersection, or Plant, or Well-known Building

If Outside Dunkirk
Write in Locality, State

PLEASE CHECK ☑ INTERSECTIONS PASSED

1. ☐ Lake Shore Drive & Central
2. ☐ Lake Shore Drive & Roberts
3. ☐ Central & 3rd
4. ☐ Central & 4th
5. ☐ Central & 7th
6. ☐ 5th & Swan
7. ☐ 6th & Park
8. ☐ Main & 2nd
9. ☐ Main & 4th
10. ☐ Main & 7th

☑ CHECK ONE IN EACH GROUP

1. ☐ Passenger Car
2. ☐ Light Truck
3. ☐ Heavy Truck

1. ☐ Business-Work
2. ☐ Shopping
3. ☐ Other

1. ☐ Parked at Meter
2. ☐ Parking Lot
3. ☐ Garage

THANK YOU!

Sample postcards used in O & D survey.

completed from survey to printed report in three months, the survey data being analyzed in about five weeks. Every one of the eight traffic surveys made in District No. 5 was completely analyzed in less than three months, despite a continuous shortage of analysts and frequent diversion of personnel to other essential work. This is in contrast to the home interview method where it is recommended that a period of six months to a year be devoted to procurement of data.

Perhaps the greatest advantage is the comparatively slight drain on the limited engineering force usually available for the survey. Only one experienced, or at least intelligent man, need be provided for each station; the rest can be almost anybody. The survey is over in one day and it is usually possible to provide a supervisory force by stripping the district office of virtually all personnel for that day. This procedure does not upset the regular routine any more than does one of our frequent legal holidays.

It has been the practice in this district to assign one engineering employee to each station. The necessary assistance is provided by people hired for the occasion by the State through some civic agency. They may be high school students, unemployed people, or others, as the city decides.

Another advantage is the large sample obtained. In this state, returns have varied from 28% to 57% and averaged about 36%.

Rapid Analysis Possible

The data obtained can be analyzed with relative ease and dispatch, even in a large city, and the coverage is very complete if enough stations are set up. The Rochester, New York survey is perhaps the best example of this. This city has a population of about 320,000 and the urban area population in 1940 was 438,000. Eighty stations were set up, manned by 280 State and local employees. Eighty-four thousand cards were handed out and a return of more than 41% was obtained. Thus, one card was handed out for every five persons in the urban area. Since everyone did not drive that day, and since through traffic was a very minor factor, it would seem that virtually all vehicle movements must have been intercepted.

The analysis of 40 or 50 thousand postal cards is not an insurmountable or even a difficult task. Eight or ten analysts can code as many as 40,000 cards in a month and these cards can then be sorted by business machine methods in a few weeks. Where the card volume is below 20,000, hand-sorting is better and is entirely feasible. Following the Niagara Falls survey, we coded and hand-sorted 8,000 cards and nearly 5,500 driver interviews in about four weeks with a force averaging five analysts.

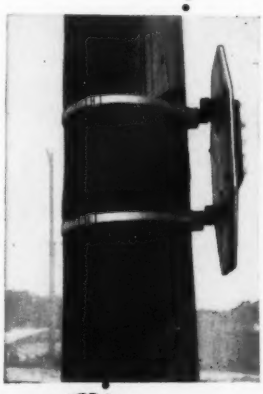
The analysts need not all be experienced at the start. By the time they have worked at the job a week, they will have a sufficient knowledge of the procedure and will need only occasional advice from the squad leader.

Summarizing what has been said, our experience indicates that the postcard method of origin and destination survey has two great practical advantages:

1. All information is procured in one day and can be analyzed in two months or less. This tremendous time saving is invaluable to a nation already years behind in its urban route development.
2. By permitting the use of a large proportion of untrained distributing men and analysts, it eases the personnel shortage in these times of stringency.

These advantages do not detract from the value of other survey methods, but they are sufficiently essential to place the postcard survey in the front rank among methods of determining the travel habits of urban motorists.

STEEL STRAPPING
FOR ATTACHING SIGNS



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Write for full information, and the name of the nearest Strap Man who will gladly demonstrate the A. J. Gerrard Improved Methods.—No obligation.

SS-3

STEEL STRAPPING
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(Chicago Suburb)

The Need for Public Relations In Traffic Engineering

By J. E. Bulger
Vice-President and Director of Public Relations, Chicago Motor Club

It is probably a score of years ago that Blaw-Knox built an open mesh steel bridge on Cherry Street in Toledo. The steel mesh seemed unusual and the company feared it would not take with the public, so a demonstration was arranged. The street was sprinkled, a stout driver followed the sprinkler over the bridge and jammed on his brakes. Nothing happened. He repeated the stunt on a wooden bridge and skidded precariously. This is a striking example of selling the public on an engineering project. We are living in a new era. People are more inclined to question the plans of engineers than they were twenty years ago. Pressure groups have developed in the country. Today every man sincerely believes he is a competent traffic engineer. Talk to any group of laymen you meet and you will generally discover that the opinions of the experienced engineer are given little more weight than the barber in chair number two.

There is nothing strange about this. It is an American custom. Most of us think we are perfectly competent to run a football team, a baseball club, or to write our own advertising. The only ones who seem to have the public convinced of their superior technical ability are the doctors. We still hesitate to perform an amputation on our friend's leg injured in an automobile crash. The reason for all this is perfectly obvious. All of us know how to talk and we know something about writing; consequently we think we can make a speech as well as an orator or write just as good an ad. All of us drive cars so we think we know all about traffic. In such a world the traffic engineer finds it hard going when he tries to explain a few simple rules to laymen gathered at a meeting. For this reason we will endeavor to explore the need for public relations in traffic engineering.

The Need For Effective Press Relations

Public relations is like engineering, or medicine, or the law: it has many departments. Unfortunately, in public relations one department has been over-emphasized. It has been over-emphasized not at the hands of the practitioners, but in the minds of the general public. That is the phase of *publicity*. Public relations ordinarily is formed of the following parts: (1) Contacts with group leaders; (2) contacts with the general public; (3) work among employees; (4) work among stockholders; (5) publicity work through the press, radio, and other channels of communication; (6) advertising.

More than a decade ago the Public Relations Clinic of Chicago was formed. In that clinic we have representatives of the leading industrial and commercial firms of the city. Men not acquainted with public relations might well believe that much of the discussion centers around publicity. The facts are that in the Public Relations Clinic very little attention is paid to press relations. So *public relations* is an operation covering many phases. Very briefly the object is to have the general public think well of the organization which the public relations man represents. Many large corporations go to a great deal of expense and trouble in finding out exactly how they stand with the public from year to year and even from month to month. This should indicate to you that the field is a broad one.

In directing a discussion to traffic engineers, however, we should center our attention on *press relations*. Effective press relations can make your task much easier. All of us know competent traffic men who are veritable "bulls in a china shop" when it comes to handling the press. We are inclined to think that this attitude is the result "swelled head". Many years ago Robert E. Lee said that a true gentleman never made anyone else feel inferior. To perform effective public relations one, of course, can not make anyone feel inferior. If an engineer or a traffic chief has a feeling of superiority to the man representing the press he will be unable to keep this from showing. As a former newspaper representative we cannot understand why anyone in the country could afford to feel any superiority to a good newspaper man. By education, breeding and general knowledge he will square up with anyone. He may not know how to operate a slide rule, but on the other hand we have seen some very excellent slide rule operators get their syntax pretty well garbled up; so the first rule is to be convinced that you are not a better man than the newspaper man simply because you know more traffic facts.

The press can do a great deal towards smoothing out your difficulties. A few rules for correct conduct in dealing with the press come to mind. Almost never will you find a newspaper man who will violate a confidence. On the other hand, the news source should play fair with the newspaper man. Is it ever right to give an exclusive? No doubt there are many occasions when an exclusive should be given. For example: a newspaper man is working on a certain project. All the other papers may have known the project existed but this particular newspaper has seen fit to push it. If you give facts and figures concerning this project to the newspaper which has taken it over as a pet, certainly you couldn't be justified in giving this information to a rival paper (by "rival paper" we mean any other paper). If on the other hand you develop information on your own and decide that a story should be given out, it should in justice go to all the papers.

Traffic Engineering in the Public Interest

We purposely sought out information on what other men in public relations thought of the relationship between engineers and public relations. A note from Phil Hanna of the Automobile Club of Southern California states:

"I think the very best approach you can make to the

highway engineers is to encourage, and even urge, them to take the public into their confidence as they conceive and develop their various road programs. Highway engineers are very much like other professional men, including physicians, lawyers, architects, etc.—for they are inclined to be retiring, to hold their own counsel, to develop their road programs and design ideas in secrecy, and then to attempt to sell a packaged program to the public. The public always resents this strategy. If highway engineers can be taught to go to the grass roots, discuss their problems with public opinion forming leaders, seek the cooperation of civic-minded individuals and organizations, and then construct their program, there is a far greater likelihood that such a program will receive public approval and support.

"My many years of dealing with the public has led me to the complete conviction that people can be led to the right thoughts if they are properly informed about them at the outset, but they will not be driven to accept any pre-conceived and packaged program, no matter how celebrated the authors of such a program may be.

"We have gotten that approach over in California very well indeed, in the matter of highway improvement and motor vehicle legislation, among both engineers and lawyers, and the strategy has proven itself."

Ed Moore of the California State Automobile Association reports as follows:

"It has been my observation that engineers become so engrossed in their work, particularly the technical phases of it, that they are apt to lose touch with the public. For this reason and also, because of their obvious self-interest in the development of a modern highway system, they are not in as good a position as an outside group to sell the public on the need for a highway modernization program.

"Many engineers are fearful of working with outside groups. Sometimes, this fear is justified, but often, it is not. What an outside group stands for and what it is actually endeavoring to accomplish should determine the extent of the confidence placed in it by the Department.

"Highway engineers are working for the public and the public is entitled to know what the engineers are doing, what their plans are, and how they intend to put them into action.

"I realize full well the political pressures which are, on occasion, brought to bear on highway engineers. This may account, in some degree, for their natural aloofness. But one thing which every engineer needs to remember is simply that if his planning and the execution of those plans are sound and in the public interest, they will be less subject to political pressure than would otherwise be the case.

"No one likes to be criticized, and certainly, engineers are no different in that respect than anyone else. Sometimes, however, they become too technical. After all, highway building has its practical aspects and in determining the economic impact on a community or area created by design, location, nature or type of highway facility to be built may well justify open discussions with interested citizens and groups.

"This does not mean that someone from the outside is trying to tell the engineer how to run his business. On the contrary, it must inevitably have the effect of winning more and more friends and supporters for the particular project or program. And if there are phases of the program which are faulty, correction can be made before the damage is done.

"Engineers, as a rule, may dislike intensely to receive suggestions from the public. And, of course, it is quite true that the average citizen is not technically trained to do the engineer's job. On the other hand, however, many fine suggestions for improvement in planning highway facilities have come from interested citizens. Practical experience in operating vehicles in traffic may provide answers in design, for example, which can not be found on the drawing board.

"Although Robert Moses of New York is, as I am given to understand, not an engineer, he nevertheless is the man who planned and developed the great parkway and freeway network for New York. He won public confidence in his program before he put it into execution.

"As the story is told—the late Al Smith was mayor of New York at the time and after giving the public the full story of Moses' plans, the inevitable opposition, consisting mainly of owners of business properties which might be adversely affected by the parkways, called en masse on the mayor. Al listened patiently to their criticisms of the proposed program, then rang for Moses. When Moses arrived before the angry crowd, Al Smith asked him one question, it was: 'Is this program you are proposing in the public interest?' Moses replied that it was. And Al turned to his audience and said: 'Gentlemen, that is all I can ask of my Park Director. If this program will benefit the people of New York and we can afford it, it seems to me that you would want to support it, rather than oppose it.'

"And so I would say that even though the highway engineers can never convert everyone to their point of view, that is little excuse for their failure to attempt to do so."

Engineers Must Rely on the Press

An illustration of how *not* to handle press relations was given to the author recently by an executive of a large newspaper. An organization affiliated with the road building industry had a story about the transfer of one of its men to another post and the acquisition of a new road builder. The new man, it seems had quite a reputation in another state and the organization to which he came was proud of its acquisition. The publicity man was called in and told to write a story. A former newspaper man, he knew the kind of story the newspaper would want. The President of the organization, a really famous and efficient man in the engineering field, knew better than the publicity man. He knew that what the papers would be interested in was a story slanted the way he thought it should be slanted. As a result no paper used the story. The publicity man went to my friend, the newspaper man, and asked why it was that nothing appeared. The newspaper man told him that he knew the answer as well as anybody. The moral is simply this: If you get the services of a publicity man who knows newspapers you are obliged to rely on his judgment. You wouldn't employ a newspaper man to tell you how much of a load a certain bridge could stand. You would employ an engineer. In like manner be assured that the newspaper man or publicity man has techniques that are as clear-cut as those involved in building a bridge. There is one difference and this causes confusion. The newspaper man couldn't build any kind of a bridge, not even a bad one, whereas the engineer can build a story and even his best friends won't tell him that it is bad.

Highway Design and Night Driving Visibility

By Fred W. Hurd (Mem., ITE)
Associate Professor, Yale Bureau of Highway Traffic, New Haven, Conn.

THE ability of drivers to see hazards at night is of genuine concern to all interested in the traffic safety problem. To highway designers, night visibility is thought of in terms of night sight distances. That is, how far a driver may be able to see around curves and over hillcrests or sags when driving at night.

Night sight distances are not taken into consideration in the design of highways. This neglect of an important safety measure may be explained as follows:

(1) The process of seeing at night is complex and not enough is known about it to permit translation into exact design standards. For example, little is known about driver abilities and behavior under low levels of illumination and under other night conditions such as fatigue.

(2) Night seeing is limited by headlight ranges and modern sealed beam headlights do not provide sufficient visibility for safe driving at high speeds regardless of highway design.

(3) The obvious difference between daytime and nighttime visibility is the amount and area of illumination. Road designers might have justification in assuming that night sight distance improvement should be achieved through better headlighting and street lighting or reflective devices.

(4) Accident records seem to be incapable of showing enough evidence of night sight distance deficiencies to justify the higher road construction costs incurred in the provision of greater sight distances for night driving.

Types of Sight Distances

There are two classic types of sight distances; those necessary for safe stopping before striking an obstacle in the road and those required for safe overtaking and passing. For daytime conditions, both types are given full consideration in road design.

Visibility distances required for *overtaking and passing* another vehicle are less for night conditions than during the day because the headlight "glow" of oncoming vehicles is seen far in advance of the distance where such vehicles become visible over hills and around curves during daytime. On the other hand, visibility distances available for *safe stopping* during nighttime conditions are much less than during the daylight hours. Under low levels of headlight iliumination, at night, it takes drivers longer to see a hazard. Furthermore, the aiming of headlights and their light distribution, which are controlled to reduce glare, limit the vertical and horizontal angles of driver visibility at night. This becomes important on horizontal curves and valley vertical curves. At hillcrests, the low elevation of headlights below the driver's eye level is an added factor on the reduction of visibility distance over the top of a hill.

Critical Night Visibility Conditions

Night visibility is the least when drivers are subjected to glare from oncoming headlights or other extraneous light sources. Without glare, the greatest demand on visibility at night exists when drivers must be able to see ahead far enough to avoid striking an unlighted and unreflectorized obstacle on the road without the benefit of any illumination other than that provided by their own headlights. In its most distance consuming form, this is the visibility distance required for a driver to perceive and react to a hazard in time to bring his vehicle to a complete stop before a collision.

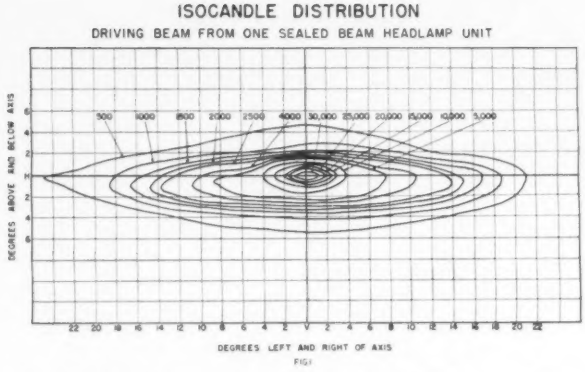
Obviously, illumination of the obstacle from street lights or the headlights of other vehicles will increase the visibility distance, provided glare is not present. Reflectorization of an obstacle with materials of adequate reflective qualities will also warn drivers in advance of the distance at which the obstacle actually becomes visible. It is when these aids are not, or cannot, be present that the need for adequate stopping sight distance is greatest.

Obstacle Factors

The brightness of an obstacle under a given amount of illumination depends upon its reflection factor or its ability to reflect light. The reflection factor of a "white" diffusing surface is better than 90%. A pedestrian in dark clothing has a reflection factor of about 2%. Most objects encountered in night driving have a reflection factor of about 7%.

Brightness contrast is also a factor in night visibility. It is the ratio of the difference in brightness between an object and its background. A driver sees an obstacle ahead at night either by direct vision or by silhouette (reverse vision). When the only illumination is the driver's own headlights and the reflection factor of the obstacle is greater than that of the pavement, the obstacle is usually seen by direct vision. If the reflected light from the pavement is brighter, the obstacle shows as a dark image on a lighter background and is accordingly seen in silhouette. Obstacles of low reflection value, when only the illumination from the driver's headlights is involved, may first be seen by silhouette and later by direct vision as the vehicle moves closer to the obstacle.

Brightness contrast between an obstacle and its background is usually determined by pavement color. Since most obstacles encountered on a road are dark in color, their brightness contrast ratio with a dark pavement is very poor. Pavement texture does not seem to make much difference in visibility as long as the pavement is dry. However, on fine textured pavement when surface water does not drain away freely, specular reflection results. In extreme cases of specular reflection, all of the light from headlights is reflected


ISOCANDLE DISTRIBUTION
DRIVING BEAM FROM ONE SEALED BEAM HEADLAMP UNIT
500 1000 1500 2000 2500 4000 30,000 25,000 20,000 15,000 10,000 5,000
DEGREES ABOVE AND BELOW AXIS
DEGREES LEFT AND RIGHT OF AXIS
FIG1

away from the driver's eye and the pavement surface appears black regardless of its color. When this occurs, detection of an obstacle is possible only at the distance of vision afforded by direct illumination.

The size of an object determines its ability to attract driver's attention. The dimensions of its critical detail affect discernment of its hazardous nature. Visual size of an object and its details is the size that it appears at a distance. Visual size decreases approximately inversely with increased distance.

Driver Factor

Not much is known about the time required for a driver to perceive and react to a hazard at night. Eyestrain and glare along with the physical and mental fatigue experienced at the end of the day probably is responsible for a longer reaction time at night than during the day. Visual stimuli under low levels of illumination are much weaker than during daytime and therefore do not compel as much attention.

Quantitative measurements of driver perception distances at night have been made in an exploratory investigation by engineers at Nela Park in Cleveland. These studies[1] show that drivers see the expected obstacle, at night, at about twice the distance that they see an unexpected one. If expected, the obstacle is often seen by silhouette, that is, it appears darker than the background pavement. More brightness and brightness contrast is required to gain the driver's attention if the obstacle is unexpected. Most unexpected obstacles are perceived only after the vehicle is close enough to illuminate the hazard sufficiently for direct vision. The difference between the perception distance of the expected and of the unexpected obstacle takes on more meaning when it is realized that the level of illumination upon the obstacle varies inversely as the square of the distance from the light source.

Headlight Factors

Contrary to the great effort through safety education to induce drivers to dim their lights in traffic, not all of them do so. The resulting hazard caused by headlight glare has necessitated limitations on beam candlepower and the pattern of light emitted by headlights.

The Uniform Vehicle Code (Act V) limits modern sealed beam headlights to 75,000 candlepower from both headlamps combined. Minimum specifications of the Society of Automotive Engineers for sealed beam headlights require at least 40,000 total candlepower.

The distribution of light within the headlight pattern is controlled by both the Uniform Vehicle Code and specifications set forth by the Society of Automotive Engineers. Fig. 1 shows the isocandle distribution of the driving (upper) beam of a single 30,000 candlepower headlamp in excellent condition.

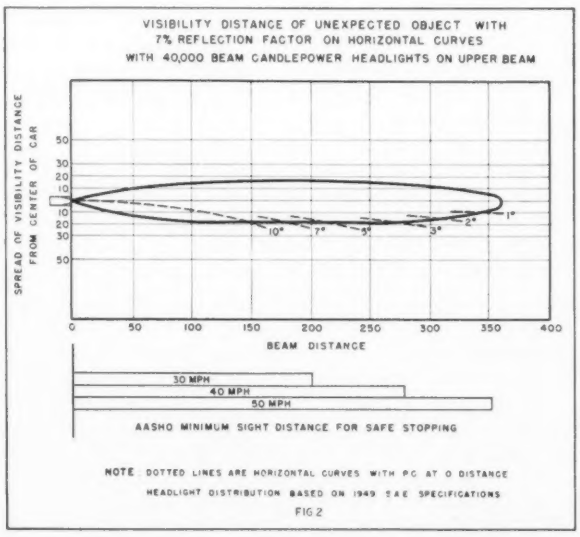
By doubling the candlepower shown in order to obtain the total candlepower for two headlamps and applying the inverse square rule, foot candle contours may be located along the horizontal and verticle planes of the combined headlight beam. This was done for two 20,000 beam candlepower headlamps to obtain the visibility distances shown in Figures 2 and 3. This lower intensity was used since it is the legal minimum and is probably more representative of the headlighting of average vehicles in the traffic stream.

The mounting height of headlights is about 2½ feet above the surface of the road. This low position, doubtlessly, was chosen to aid in the reduction of headlight glare. At this height, headlights are about 2 feet below the level of drivers' eyes. As the top of a hill is approached, the distance of surface illumination within the headlight range, is limited to the length of a line from the headlights to a point of tangency with the vertical curve of the road. Applying the same principle, drivers, from their higher vantage point, are in a position to see the road surface for a greater distance than it is illuminated by his headlights.

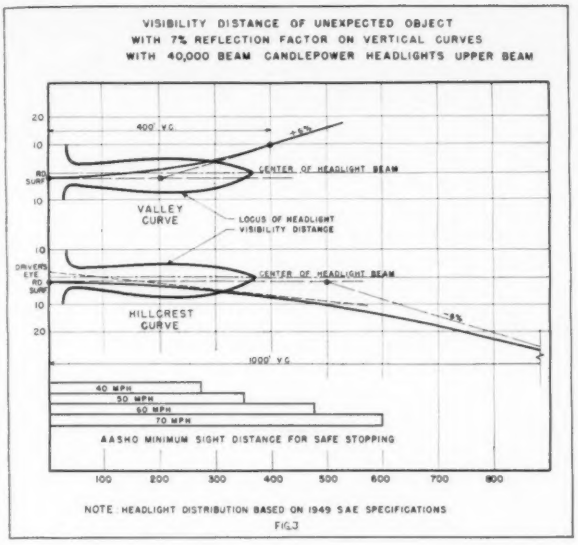
Higher mounting of headlamps nearer to the driver's eye would also increase the reflective brilliancy of retrodirective reflectorizing materials used on signs and obstacles.

Effect on Highway Design

Figure 2 shows the beam distance at which a driver should see an unexpected obstacle with 7% reflection factor and with 40,000 headlight beam candlepower on the straightaway and on various horizontal curves. Figure 3 shows the same information for a valley and hillcrest vertical curve. On both figures, the minimum safe daytime stopping distances recommended by the AASHO is given in graphic form for comparison with nighttime visibility distances. For these figures, it was assumed that the "hot spot" of the headlights is directed straight ahead. Vehicle loads will change the vertical angle of headlight beams and erratic steering as well as bumps in the road surface will cause the beam to shift around on the road ahead. It was also assumed that a reflection factor of 7% applies to the average obstacle


VISIBILITY DISTANCE OF UNEXPECTED OBJECT WITH
7% REFLECTION FACTOR ON HORIZONTAL CURVES
WITH 40,000 BEAM CANDLEPOWER HEADLIGHTS ON UPPER BEAM
SPREAD OF VISIBILITY DISTANCE FROM CENTER OF CAR
50 30 20 10
10 20 30 50
10° 7° 5° 3° 2° 1°
0 50 100 150 200 250 300 350 400
BEAM DISTANCE
30 MPH
40 MPH
50 MPH
AASHO MINIMUM SIGHT DISTANCE FOR SAFE STOPPING
NOTE DOTTED LINES ARE HORIZONTAL CURVES WITH PC AT O DISTANCE
HEADLIGHT DISTRIBUTION BASED ON 1949 SAE SPECIFICATIONS
FIG 2

1. Val J. Roper and E. A. Howard, "Seeing with Motor Car Headlamps," Transactions of the Illuminating Engineering Society, No. 5, May, 1938.


VISIBILITY DISTANCE OF UNEXPECTED OBJECT
WITH 7% REFLECTION FACTOR ON VERTICAL CURVES
WITH 40,000 BEAM CANDLEPOWER HEADLIGHTS UPPER BEAM
400' V.C.
CENTER OF HEADLIGHT BEAM
VALLEY CURVE
LOCUS OF HEADLIGHT VISIBILITY DISTANCE
DRIVER'S EYE
CENTER OF HEADLIGHT BEAM
HILLCREST CURVE
1000' V.C.
40 MPH
50 MPH
60 MPH
70 MPH
AASHO MINIMUM SIGHT DISTANCE FOR SAFE STOPPING
100 200 300 400 500 600 700 800
NOTE HEADLIGHT DISTRIBUTION BASED ON 1949 SAE SPECIFICATIONS
FIG.3

and that it will be seen, when it is not expected, at one-half of the distance of the 0.075 foot candle contour[2].

The figures clearly show that more illumination than that provided by modern headlights is required on straightaways for safe stopping sight distances on roads designed for speeds above 50 mph. They also show that wider distribution of the headlight beam on the horizontal and vertical planes, along with increased candlepower, is essential for improved night sight distance on vertical and horizontal curves. From the standpoint of highway design, longer vertical curves and flatter horizontal curves than currently employed are required to fully utilize the meager night visibility distance available.

Traffic islands and other traffic channelizing controls have demonstrated their usefulness in the reduction of accidents and congestion. Poor nighttime visibility discourages their application on high speed roads where they are needed the most. Figures 2 and 3 show why a raised island or any other design element which is an obstruction becomes particularly lethal at night when located on a horizontal or vertical curve.

Other Factors

Many other factors must be considered in the problem of night sight distances. The effect of glare on driving comfort and safety cannot be minimized. An objective comparison of the frequency and severity of accidents resulting from glare, on one hand, and insufficient night visibility distance, on the other, may motivate increased investigation into the various aspects of the problem.

Obstacles in the roadway are, indeed, seldom found. All of those of a permanent or controllable nature may and should be illuminated or reflectorized. It also is questionable that changes in roadway alignment may be classed as unexpected hazards. Drivers expect curves in the road and are more alert for them. Moreover, roadside delineation may be used to aid drivers in their discernment of curve locations and degrees of sharpness.

A vehicle does not always need to be brought to a complete stop in order to avoid an accident. Decreases in speed, change in path and sometimes an increase in speed are often the only actions needed. In these cases, present night visibility distances may be adequate even at high speeds.

The regulation of traffic for night driving safety is an area within which improvement may be made. Night speed limits with rigid enforcement could be uniformly applied to curtail the practice of "driving ahead of the headlights." Such limits have been tried without outstanding results as evidenced by the lack of widespread adoption. Strict enforcement of the rule for dimming headlights in traffic may be utilized to permit the use of higher candlepower and wider distribution of light in the headlight pattern. This, along with the adoption of a "super-upper" beam for exclusive use on divided highways and one-way streets, may be impractical because of driver misuse and misunderstanding.

Polarized headlighting has been developed through the experimental stage. The potentials of polarization[3] are not understood generally by those outside of the lighting field. Drastic changes in traffic regulations, road design, street lighting and reflectorization will accompany the change to polarization if, and when, it is made.

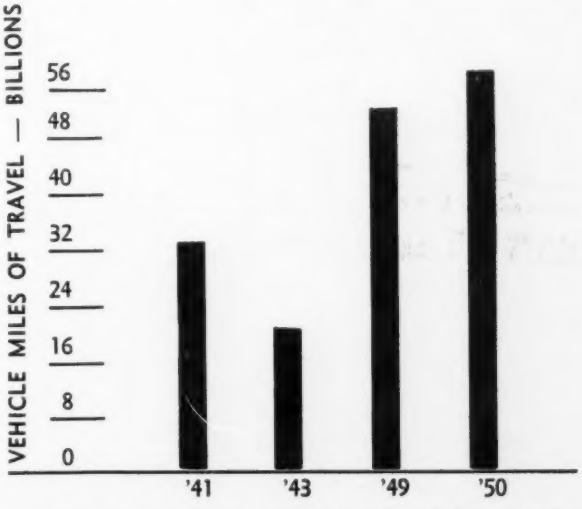
Conclusions

The problem of night driving visibility challenges the field of automotive transportation. Traffic, design and lighting engineers as well as safety educators and enforcement officials could contribute toward its solution. The problem is complex, but the high ratio of accident rates for night over day driving on rural and urban streets and highways is indicative of the large reduction in traffic accidents that may be brought about by its solution.

2. These assumptions are based upon the limited information available on the subject. It is believed that they give a reasonably accurate measurement of night driving visibility conditions.

3. Two articles on this subject appear in current issues of *Traffic Engineering.*

Traffic Trends



TRAVEL ON RURAL ROADS FOR FIRST THREE MONTHS of 1941, 1943, 1949 and 1950.

Based on Bureau of Public Roads Data

Traffic and Highway Planning for the New York - New Jersey Metropolitan Area

By New York Metropolitan Section, I.T.E.

Through the courtesy of the editor of "Traffic Engineering", the New York Metropolitan Section of the Institute of Traffic Engineers has arranged for a series of articles commenting on the development of various highway and traffic agencies in the New York-New Jersey metropolitan area and describing some of their significant projects. These articles which will appear in the June, July and August issues of the magazine will point out the coordination which has been necessary in order to provide a comprehensive integrated highway system in this area. It is hoped that publication of these articles will also stimulate interest on the part of those attending the 21st Annual Meeting of the ITE to be held in New York from September 24th to 27th, 1950 so that the delegates will take the opportunity to visit and inspect some of these projects which may provide ideas helpful in meeting their own local problems.

Vehicular Transportation in the Metropolitan Area

VEHICULAR travel in the New York-New Jersey metropolitan area has been confronted with great transportation and terminal problems resulting from the tremendous growth in motor vehicle usage, particularly during the last quarter of a century. Since the principles apply equally to communities of varying size, the methods which have been developed for solving some of these problems in this area have attracted wide-spread attention throughout the nation.

These problems, although similar in all parts of the country, have been accentuated in this area by a great concentration of population, business and industry; by the rapidly expanding motor vehicle ownership and usage for pleasure and business purposes; by the many separate governmental jurisdictions existing within this region which include two states, 17 counties and over 200 municipalities; and by physical aspects of geography such as wide waterways, which, although providing essential transportation for waterborne commerce in the harbor, require frequent spanning by many costly bridges and tunnels. These many factors brought forth a demand for bold new measures in order to provide suitable facilities for all modes of transportation, and for vehicular travel in particular in order to meet the needs of the motor age. Many accomplishments have been achieved in this area. It goes without saying that much remains to be done.

In highway transportation, great strides have been made in the past quarter century. Many vast projects have been completed, including expressways, parkways, bridges and tunnels, which are already in use. Others are now under construction and include such projects as new express routes to airports from urban centers, direct arteries through heavily populated sections of New York City and New Jersey, and expressways which will travel the length of the two states and incorporate the most modern traffic design features. Still other highway facilities are on the drawing boards of various agencies, or laid out on the plans and maps for future development. Thus a vast system of streets and highways, expressways, parkways, turnpikes, tunnels and bridges, and terminal facilities are already available or are being rapidly developed to serve the 12,000,000 people residing within a radius of 25 miles of the Statue of Liberty. While the cost of these public highway facilities, which have already been completed or are now under construction, approaches two billion dollars, this tremendous sum is primarily a measure of the large population. Actually, the cost of these *special* arteries represents an expenditure of less than $200 per resident.

Paralleling the development of highway arteries has been the great growth in commercial usage of these facilities. Today the highway system is utilized by a wide-spread and comprehensive bus transportation industry. In New York City alone, some 10,000 busses bring 290,000 passengers daily into the Manhattan central business district south of 60th Street, of which some 2,500 buses enter midtown Manhattan each day from New Jersey, carrying 60,000 commuters between the New Jersey and New York sides of the Hudson River. Bus transportation systems serve other portions of the metropolitan area as well and play an important part in supplementing railroad and airline services by providing transportation for many passengers to the heart of the large cities. New transportation arteries, as well as terminal facilities, are continually stimulating further growth of the bus industry.

In the transportation of freight, some 7,000 "over-the-road" trucks enter New York each day carrying important shipments from all parts of the nation, while thousands more directly serve other parts of the area. Here, too, the truck plays an impressive role in handling large portions of the freight carried by other modes of transportation—by rail, water and air—and the increasing use of the truck parallels the development of highway and terminal facilities.

Coordination Between Highway and Traffic Agencies

To cope with this tremendous problem, most of the large cities and towns, as well as the two states of New York and New Jersey, have established their own separate and independent highway and traffic agencies. Traffic engineers, police departments and motor vehicle agencies in the states, counties and cities play an important role in the enforcement and control of traffic on these arteries. In order

to provide for proper design, many of the governmental units have set up traffic engineering departments to incorporate the latest features in design and traffic control for their street and highway systems. These states, counties and cities have provided a vast network of traffic arteries which furnish essential transportation for all types of vehicular travel.

However, in addition to the usual departments for building traffic facilities, the New York-New Jersey metropolitan area has pioneered in a new approach for handling special problems. The enormous cost of furnishing great transportation and terminal facilities has motivated the states and cities to establish entirely new governmental agencies which are able to plan and build vast projects and finance them by revenue bonds, outside the debt limits of the states and cities.

It was in the New York-NewJersey metropolitan area that the first of a new type of agency was created in this country—The Port of New York Authority, which serves as the joint agency of the two states of New York and New Jersey in planning, financing, building and operating great transportation and terminal facilities which could not otherwise be achieved. This new organization was, in turn, followed by the establishment of other agencies such as the Triborough Bridge and Tunnel Authority, responsible for tunnels, bridges and related facilities within the City of New York. In New Jersey, a Turnpike Authority was established in 1949 to provide a new 118-mile expressway which is to run almost the entire length of the state. This facility will be completed within two years of the start of construction, whereas under normal construction programs, ten or twenty years might have elapsed before the expressway was completed. This year, the New York State Thruway Authority was set up to build a $450,000,000 high speed expressway, extending from New York City to the western part of the State.

The job of coordinating the construction of highway and parkway facilities within the New York-New Jersey metropolitan area obviously assumes considerable importance. It is necessary to integrate New York City's arterial highways and parkways with the parkway facilities for through passenger car travel within the heavily populated areas of Westchester and Long Island in New York State. In 1946, the Office of the City Construction Co-ordinator was established in New York City to schedule and expedite the construction program and represent the City in its relations with cooperating State and Federal agencies engaged in the postwar public works program, as well as the planning of facilities for the City. The Co-ordinator works with the Mayor, the five Borough Presidents and other official bodies and departments within the City of New York to formulate and develop the City's arterial program of parkways and expressways. In his dual capacity as head of the Long Island State Park Commission and New York State Council of Parks, the Co-ordinator is also in a position to integrate the City's arterial program with that of New York State.

As can be seen from the number of agencies involved, a major problem in this area—and it applies equally to other areas with a multiplicity of separate and independent agencies—is that of integrating the activities of each so that the various parts of the street and highway system will be dovetailed into a comprehensive and coordinated system. It is an established fact that these agencies have cooperated and work together on a day-to-day basis. As a result, through arteries are now available for the most expeditious and efficient vehicular movements of persons and property.

This coordination is not unplanned. The liaison and cooperation between agencies has been carried out by joint meetings and discussions, as well as continued contact between the traffic officials. In addition, planning and development studies for the entire metropolitan area have been carried out by such organizations as the Regional Plan Association, which has done much to achieve cooperation among the various political subdivisions of the region.

The series of articles on New York-New Jersey metropolitan highway and traffic agencies which follow will give the reader a better realization of the coordination necessary among the various agencies, in addition to an understanding of the great highway and traffic projects which they have built.

New Jersey's Answer to its Traffic Problem

By O. Herbert Fritzsche

Director, Division of Planning, Traffic & Economics, New Jersey State Highway Dept.

NEW JERSEY, lying between the populous areas of New York City and Philadelphia and separated from these ports by the natural barriers of the Hudson and Delaware Rivers, is faced not only by the traffic problems produced by normal automotive movement but also by those resulting from the concentration of vehicular traffic at the relatively few facilities crossing these rivers.

A study of the overall state highway traffic picture reveals that one-third of New Jersey's state highway system is now carrying volumes of traffic greater than their design provided for, and at the present increasing rate of motor use another third of the system will be overburdened with high traffic volume in the next ten years.

In coping with these problems, the New Jersey State Highway Department has, within its organization, a Division of Planning, Traffic and Economics, and a Department of Design and Construction. Both of these branches work in close harmony toward the end of supplying relief from congestion and greater safety for the motorist using the New Jersey state highway system.

The Division of Planning, Traffic and Economics gathers traffic information, makes congestion studies, time studies and safety investigations. In addition, this division carries on origin and destination and parking surveys of urban areas. This information, when collated and analyzed, is used in determining the improvements necessary to resolve the traffic problems within a particular area.

Through this division, the Highway Department has encouraged the establishment of planning boards throughout the state. In the planning of new routes, this division and the Department of Design and Construction consult with planning boards affected, for the purpose of providing information of the state's plans in order that these communi-

ties may intelligently plan their development. By this approach, the sub-divisions of the state are in a position to anticipate possible traffic problems and avoid these problems by their own planning.

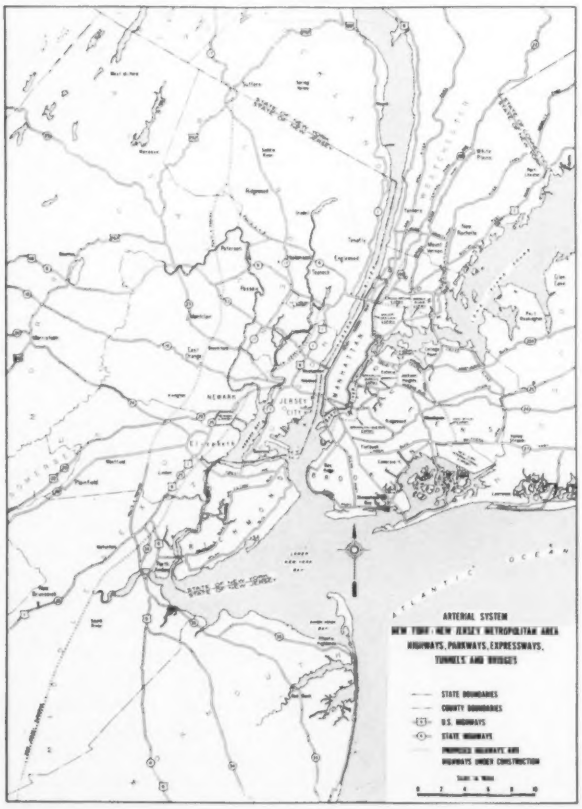
When local sub-divisions need traffic information, it is not unusual for the State Highway Department to furnish traffic counts or even to send a representative to the community to give whatever aid is possible in the form of consultation service.

It is the practice of the Department to maintain a record of accidents on its highway system. High accident locations are investigated for the purpose of determining whether these accidents are caused by highway deficiencies. When such a finding results, improvements are then planned for inclusion in the highway construction program.

The Highway Department has taken the initiative in enlisting the cooperation of all agencies interested in the solution of traffic problems. A committee appointed by the State Highway Engineer and consisting of representatives of the Division of Planning, Traffic and Economics and the Department of Design and Construction of the Highway Department, members of the State Police, Division of Motor Vehicles, and the President of the State Police Chief's Association, studies conditions on the highway system and makes recommendations for improvements to expedite free flow of traffic on state highways. This committee has functioned for approximately a year and in that time has, by its recommendations, accomplished much in relieving congestion on our highways.

New Projects in the Metropolitan Area

The Highway Department has several projects either recently completed or now under construction which should be of special interest to the traffic engineer, and which will offer to the motorist in the New York-New Jersey metropolitan area safe and free flowing traffic facilities.



One of the most important of these projects is the conversion of New Jersey Route 25, a main north-south artery in the state, to a 4-roadway (8 lane) facility between the westerly end of the Pulaski Skyway and the Elizabeth city line, a distance of approximately 7 miles. On the portion of this route from the westerly end of the Skyway to Newark Airport, the two southbound roadways are now under reconstruction. On the portion from the Newark Airport to the Elizabeth city line, the four roadways are already in operation.

This improvement provides roadways which make possible the segregation of through and local traffic, placing the faster through-type traffic in roadways which are free of side friction. Throughout its length, there are no intersections at grade and no traffic lights to interrupt the flow of traffic.

Traffic volumes on Route 25 for an average annual day are 66,000 vehicles, with peak days much higher. On this section of Route 25, in a year prior to the improvement, there were 269 accidents, 201 injuries and 3 fatalities, as against only 68 accidents, 19 injuries and no fatalities the year after the improvement.

Under construction in Newark is the Route 25-A project which spans the Passaic River between Newark and Harrison and is a section of highway which is planned to actually connect central Newark with Jersey City. Its immediate purpose is to connect the industrial areas of Newark and Harrison and the river span is now in operation, although the entire project is not completed.

In the planning of this facility, the State Highway engineers were in constant consultation with the Newark Central Planning Board and city officials for the purpose of obtaining the best design possible in a location which would not remove too great a tax ratable value from the city's source of tax revenues. For the purpose of informing the citizens of Newark, a scale model of the project was placed on display in the Newark City Hall. Meetings were held with various civic groups and the advantages of the State's proposal were explained and questions answered.

On the west side of the state, U. S. Route 1 (New Jersey Route 26) stops at the easterly side of Trenton, forcing the important and heavy traffic of this route to find its way through the streets of Trenton in order to travel across the Delaware River and to the west. These streets are studded with traffic signals and at the daily peak hour it is not unusual for a motorist to take 35 minutes in traveling from Route 26 to the Delaware River, a distance of 3.4 miles.

To remedy this traffic congestion, two plans were considered. One plan provided for the extension of Route 26 as a by-pass of Trenton. The other plan proposed a route which passed reasonably close to the center of Trenton. An origin and destination survey of the Trenton area disclosed that 24% of traffic entering the Trenton area was through traffic, with no stops in Trenton. The remaining 76% of the entering traffic had either origin or destination in the Trenton area. Since a by-pass route would serve only the needs of 24% of the traffic, a through-city freeway route was decided upon. Close coordination of this planning was carried on with the interested civic and planning groups and city officials. Here again, with the aid of a scale model, the proposed improvement was adequately portrayed for the benefit of the community's citizens, at a public hearing,

"Route 25, carrying 66,000 vehicles on an average day, has been rebuilt to provide four separate roadways between the Elizabeth city line and the Pulaski Skyway."

prior to the adoption of the alignment for this project. All groups endorsed the plan. Today this project is under construction and in 1952 should be completed as a 4-lane divided freeway with no intersections at grade and no traffic signals. The trip through Trenton will then take approximately four minutes. The final cost of this improvement is estimated at 12 million dollars.

Of particular interest to the traffic engineers should be the general traffic conditions existing in the area between the Orange Mountains and the Passaic River through which New Jersey's first parkway is now being constructed. This parkway, when its first stage is completed, will pass through an area of northern New Jersey which has the greatest concentration of population in the state, and where there now travel 256,000 vehicles per day in a north-south direction. In this 3½ mile "band" there is no trunk route and no continuous facility to carry any portion of this traffic. The existing narrow city streets are further constricted by parked vehicles and many traffic signals hinder the free flow of this tremendous daily volume of traffic.

The parkway, of which 10 miles is nearing completion, is planned as an ultimate 6-lane divided facility with grade-separated intersections. Traffic investigations indicate that this route will immediately carry over 40,000 vehicles per day, not including generated traffic which can be expected. At a public hearing on this Parkway route, the County Engineer of one of the New Jersey metropolitan counties stated that the construction of this parkway would accomplish for the traffic of his county the equivalent of adding 20 lanes to the width of the county roads in that area.

New York State Meets the Needs of Today's Motor Transportation

By B. D. Tallamy
Superintendent, New York State Department of Public Works

STEADILY increasing motor vehicle use in New York State is creating a critical traffic problem. Its solution presents a challenge to both the public and government. During the year 1949 over 3½ million motor vehicles were registered in New York State. This is an increase of 600% over the number registered in 1920. This increase in vehicles has resulted in even greater increases in motor vehicle travel which has sky-rocketed by 940% in the same period. This double barreled growth requires even more adequate highways in order to serve the ever increasing traffic demand.

The traffic volumes with which we are concerned can be broken down into several categories, namely—Interstate Traffic, Regional or Intrastate, Intercity, and Urban or Intracity. In other words, these travel requirements are occasioned by the needs of individuals traveling from home to work or home to market; by agriculture in transporting its crops to market and bringing back to the farm the necessary supplies and materials it uses; by industry and commerce in transporting both its raw materials and finished products from producer to manufacturer or processor to the merchant and finally to the consumer; and by individuals seeking recreation. In addition to all this travel generated by the people who live within the State there is a tremendous movement over the State Highways of both goods and people from out-of-State. The portion of the annual vacation business which results from the out-of-State travel alone amounts to millions of dollars and is obviously of great importance to thousands of residents of the State who are engaged in the servicing of these travelers.

Thus, the State System, which serves as a framework for all other highway systems in the State, and which serves the most people, should be reconstructed and made adequate as rapidly as possible. The New York State Department of Public Works has undertaken this huge task. The Department has recognized the traffic problems of the cities whose streets carry large volumes of traffic to and from State Highways. Legislation has been passed providing for the designation of certain routes into and through cities as State Arterial routes. These routes are being improved at State and Federal expense except for one-half of essential right-of-way costs which are paid by the city. These completed urban improvements will alleviate congestion and remove bottlenecks on State Arterial routes within cities.

Long-Range Planning Essential

To accomplish this work much coordinated planning is necessary. Not only must the needs of the State System be considered but also the requirements and problems of each individual city must be carefully studied and a master plan evolved that is satisfactory to both the State and the City.

To date these studies have been started for sixty cities of the State. Master plans have been completed and presented to twenty-six cities. Construction on these arterial routes has been undertaken in twelve cities.

In addition to the urban planning and construction program the Department of Public Works has initiated a comprehensive survey of every State highway and has correlated this study with the urban studies. As a result of this study the needs of the State System have been determined.

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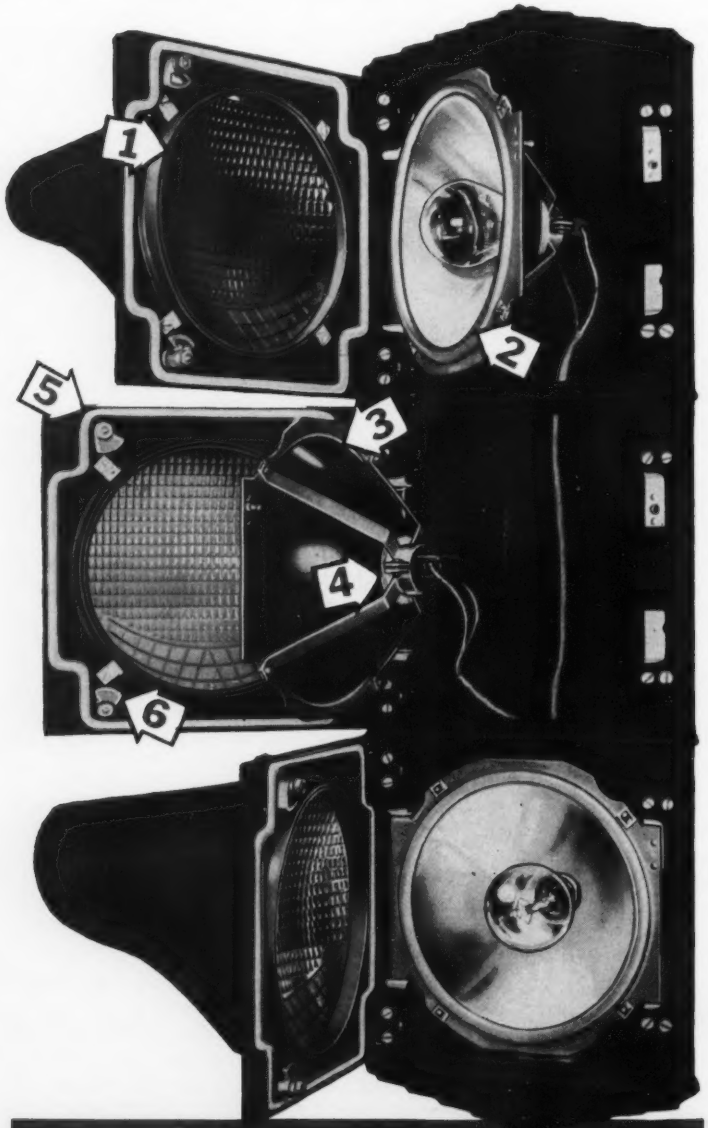

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Careful analysis of these needs, based on present and future traffic volumes, has indicated that there is an urgent and immediate need for traffic relief through the central and southeastern sections of the State.

In these densely populated areas the need for extra traffic capacity to relieve traffic congestion can be best met by the construction of new highways on new rights-of-way. To widen existing roads in these areas would require the disruption and destruction of mile after mile of established businesses and residences. Once traffic capacity was provided in this manner, it could not be maintained. Commercial development along the widened roads would soon cut their traffic carrying capacity by the increase in marginal friction and the introduction of necessary traffic controls. This would eventually defeat the primary purpose of providing adequate capacity at reasonable speeds.

The plan for providing this needed capacity by constructing on a new location a limited or controlled access highway was therefore adopted. This highway, designated as the New York State Thruway, will provide safe, comfortable, high speed travel and will serve the most densely populated areas of the State. It will be the backbone of the entire State Highway System and will extend from New York City north to Albany and thence west to or near Utica, Syracuse, Rochester, Buffalo and then southwest to the Pennsylvania State Line. It will include sections from New York City toward the Connecticut line; from a point south of Albany to the Massachusetts line; and from Buffalo to Niagara Falls.

The New York State Thruway

The completion of this highway will unquestionably relieve many of the immediate traffic problems in the most heavily populated areas of the State, and in the intervening rural areas. The coordination of the Urban Arterial plans in upstate cities with the Thruway program will provide the quickest possible aid to cities along its route where local streets are even now choked with traffic. The Thruway will be the main artery which will collect and dispense traffic of all kinds; the arterial connections will provide quick access and exit from it to the cities. Rural dwellers will be able to get to city work areas rapidly and safely. Urban businesses will benefit from this combined program which will divert to modern facilities much of the heavy traffic that is now on primary city streets, not to transact business there but to travel from one part of the city to another or merely to pass through the city. With this kind of traffic removed from regular city streets, traffic space will again become available to shoppers and others who wish to carry on normal business and permit them to do so in relative comfort and without undue inconvenience.

New York thruway at Victor, showing clover leaf and grade separation at intersection with Route 96.

This condition is prevalent in New York City as well as in upstate cities, except that it is magnified many times. Much of the traffic that is clogging and jamming New York City streets is trying to get in or out of the city in conflict with intracity movements. A way must be provided for this traffic to get off local streets and on to modern high speed thoroughfares if the city's traffic problems are to be alleviated.

The expressways and parkways within the city, when constructed in accordance with the current plans will be a big factor in providing the necessary channels of travel to relieve the local city streets. The Thruway will provide a means of rapid entrance or exit for the thousands of vehicles that must make frequent trips both to and from upstate New York and to Connecticut and Massachusetts.

The value of the Thruway in the event of a national emergency and air attack, cannot be equalled. It will stand as a reassurance and a hope for the population of our chief cities, particularly New York if war develops and bomb attacks threaten. This great artery would lend itself immediately and with high efficiency to the problem of evacuating crowded areas. Twelve broad lanes of travel could be opened immediately for the evacuation and dispersal of New York City residents to the North and northeast. This is in addition to present facilities.

It would likewise be an ideal channel for the speedy dispatching of mobile military equipment to strategic points of defense and its broad rights of way would provide ideal stations for such equipment. Let us all hope that it will never be used for this purpose but it is most comforting to realize that it will be available if it becomes necessary to play such a grim role.

Thus it is quite evident that the coordination of plans for solving the critical traffic problems of all our cities as well as our rural areas is an absolute necessity. There is so much to be done that every dollar must provide the maximum in facilities and service. Duplication must be eliminated, and the facilities that are finally designed and built must serve the most people at a minimum cost. Only intelligent coordinated planning can accomplish this.

Favorable editorial opinion regarding the Thruway has been expressed in all parts of the State. Typical is the following excerpt from a New York Herald Tribune editorial on March 22, 1950.

"It would be difficult to conceive an undertaking bolder or more imaginative, or more promising for the future of the whole state, than the proposed New York to Buffalo Thruway. The concept has about it something of the large vision of which were born the Erie Canal, and the turnpikes and railroads of earlier generations. Like these, the Thruway promises to have beneficient effects far beyond the immediate and primary ones which would alone justify its construction. A great modern highway, running upward along the Hudson and out across the westward regions of the State, tapping our chief cities, unhampered by grade level crossings of any kind, is an enterprise conceived in the spirit of the broadest statesmanship. As Governor Dewey points out, the Thruway will not only have an important bearing on New York's commerce and tourist business, but on national defense, and not least upon our own city's traffic problems."

A Small City Favors One-Way Streets

By Howard W. Buford
Planning Consultant, Central Lane County Planning Commission, Eugene, Oregon

THE history of civilization indicates that people are reluctant to accept changes in habits and customs, but the people of Eugene, Oregon, not only quickly adapted themselves to one-way streets, but enthusiastically supported their administration when a small percentage of the people attempted to reestablish the old two-way street system. Many cities would not find a change so simple, especially if a long period had to elapse between a decision to make the change and the period when such a change could be actually put into effect. If a long waiting period had been necessary, it is very possible that Eugene would still be struggling with two-way traffic, since a very small percentage of determined opposition can sour a very worthy project.

A One-Way System Is Inaugurated

It all started in the fall of 1948 when the Merchants Committee of the Chamber of Commerce, members of the City Planning Commission and the Public Works Committee of the City Council met to discuss possible means of eliminating the traffic snarls from the central business area. Street widening was out of the question due to excessive costs in condemning land and removing buildings or arcading the sidewalks, and the suggestion of removing parking from the main streets met with disapproval on the grounds that parking is already a critical problem. The suggestion of one-way streets was then introduced. After a whirl-wind review of the problem and the weighing of advice from several sources, including the State Highway Department, the committee recommended to the City Council the adoption of a one-way street system involving five east-west streets and six north-south streets in the forty square block business area. The Council approved of the plan for a six months trial period to be put into effect as soon as proper street marking could be accomplished. Two thousand dollars was appropriated to buy reflectorized signs.

Within two days after receiving the signs, the Street Department had all signs installed. At 5 A.M. on December 6, 1948 the papers covering the signs were removed and the one-way system was in operation. Within twenty-four hours the home town people were driving the streets as though the system had always been in effect and street intersections were showing an 85% increase in traffic movement.

Not more than a half dozen merchants voiced their objections during the first three months, but as nation-wide retail sales in some lines of business declined and the closing of the local lumber mills created a temporary slump, there was a feeling among some of the retail merchants that the change in traffic movement was forcing business out of the city.

The First Questionnaire Survey

After the system had been in effect for four months, a survey was conducted to determine the attitude of the people parking in the downtown areas. Five thousand postal card questionnaires were placed on parked cars. To prevent more than one card being put on each car, a mark was put in the lower corner of each windshield with a colored grease pencil. The local newspaper printed a copy of the card on the first page and requested that all people cooperate.

Whereas a 10% return from such a survey is considered good, the Eugene response was 37%. Some people cut out the printed card in the paper and others came to the City Hall when their automobiles were missed by those distributing cards. The people voted for the adoption of one-way streets as a permanent system by a majority of more than 4½ to 1. 77.24% wished to retain the system, many of whom expressed a need for more controls, marking, and policing. 8.36% wanted certain modifications such as reversing direction of traffic flow or reestablishment of certain two-way streets. 14.4% wanted to return to the two-way system.

Following is a summary of the answers:

	Yes	No	Ratio
1. Permanent 1-way streets?	1418	307	4.61:1
2. Easier to reach destination?	1333	381	3.5:1
3. Easier parking	1372	341	4.02:1
4. Shall we modify the 1-way street system?**	658	1046	1.1:59

***The yes or no answer does not indicate the true response from the cards. In answering this question some people would say "Yes, add more traffic lights," while others would say "No, more traffic lights are needed."*

A relatively few business men were still dissatisfied claiming the postal card survey was only a popular vote and did not reach the people who had quit coming to Eugene because of great dislike for the changed system. Furthermore it largely ignored the tourist trade and did not give enough consideration to the business men who had suffered from a certain loss in trade and who were in a position to know the attitude of people with regard to one-way streets. After several meetings and Council hearings, another questionnaire was devised and mailed to the business and professional men in the central business area. The questionnaire sent these people asked how they liked the system, how the system affected their business, and what changes they might suggest.

The Second Survey Clinches the System

Of the 1800 surveys sent out, only 471 (26%) were returned. The survey was tabulated in two sections—one based on the opinions of business and professional men within the system, one based on the views of those with business in other parts of the city. The results were very similar to the postal card survey. In general, however, retail merchants were after modification but voted more than 4 to 1 against returning to the two-way streets.

A partial summary of the answers follows on the next page.

Persons receiving the questionnaires were asked if their business volume had changed during the first six months of 1949, as compared with the first six months of 1948. Forty-two of those doing business within the grid system said business had increased, 114 said it had stayed approximately the same, and 96 said it had decreased. Of those outside

the grid 17 said it had increased, 16 said it had stayed the same and 8 indicated it had decreased.

When they were asked if they blamed the one-way system for the change, 92 within the grid said they did and 215 said they did not. Outside the grid 11 said they attributed the change to the grid system, and 39 said they did not.

The business and professional group were strongly in favor of leaving the one-way system as it was operating, by a plurality of 20-1. Tabulation of the results was somewhat complicated by the fact that two changes were made during the survey period and it was impossible to determine whether the people were voting for or against the system, as first established, or as modified.

After the publication of the results of this second survey, the Council passed an ordinance making the one-way street system permanent. All opposition seems to have been appeased and it appears that Eugene's method of handling traffic is here to stay until further congestion demands new action.

INSIDE PRESENT GRID Kind of Business	Approve As Is	Approve Change—No Recommendation	Desire Modification	Desire Abolishment	Total
Retail Merchants	26	12	65	27	130
Retail Service	10	4	26	10	50
Business & Professional	64	30	66	7	167
Property Mgt	3	0	7	8	18
TOTAL REPORTING	103	46	164	52	365
OUTSIDE PRESENT GRID					
Retail Merchants	28		0	12	41
Retail Service	9		5	2	16
Business & Professional	14		2	3	19
Property Mgt	4		0	0	5
TOTAL REPORTING	56		7	18	81

How they felt on some of the specific questions is reflected in the following figures:

QUESTION	INSIDE GRID Yes	INSIDE GRID No	OUTSIDE GRID Yes	OUTSIDE GRID No
Favor present 1-way grid	251	64	56	15
Open Willamette & Broadway to two-way traffic	117	201	20	49
Do you think traffic systems would be improved by more off-street parking facilities?	334	11	66	3
Would you favor a special city election on the one-way grid plan to learn views of the citizens on it?	106	189	22	37
Favor comprehensive and continuing study of downtown traffic before final determination is made	208	72	40	30

Open Discussion

By Charles Adler Jr. (Affil., ITE)
Mount Royal Station
Baltimore, Maryland

Traffic Regulation By Radio

A CITY STREET, depending on its width and distance between intersections, has a capacity for moving a definite number of vehicles smoothly. When this capacity is exceeded, traffic congestion results.

It often happens that certain streets have reached their vehicle saturation point, whereas other streets are comparatively free. If drivers whose intention to use the congested streets could be warned of traffic conditions ahead, and dispatched to more favorable routes, many traffic jams could be alleviated. In the event that all of the streets in a city zone have reached their capacity, the drivers of cars could be apprized of the situation and warned not to enter such zone, but either to by-pass or to proceed to the nearest garage or parking lot, leave their cars, and take the subway or bus into the zone.

The most feasible manner of conveying this advance information in blanket form to the motoring public continuously, is by means of police radio receiving sets installed in all licensed motor-vehicles. In New York City the system would work something like this:

Traffic observers in regular police cars equipped with transmitters would cruise up and down the main north and south avenues. These observers would report the traffic conditions at intersections and on the cross-streets to a dispatcher at police headquarters who would note the conditions on his master-chart. The dispatcher would then continuously advise the vehicle-drivers throughout the city of unusually heavy traffic spots and suggest alternate routes. In case of fire, all traffic could instantly be diverted from streets along which the fire engines would be about to traverse.

In addition to the centrally located dispatcher, police officers in scout cars would be able to single out individual motorists whom they may observe causing congestion or violating a traffic rule, by noting the make and license number of the car and admonishing the driver via his radio.

To put such a system into operation; first, all licensed motor vehicles must be equipped with police radio receivers. Second, a centrally located radio transmitter must be installed for giving blanket instructions to drivers throughout the city. Third, police scout cars must be equipped with two transmitters, one to advise the central dispatcher of traffic conditions as the officers cruise along the avenues, the others of very low power to enable the officers to talk to the drivers of individual cars or group of cars within visual range, who may be causing traffic congestion or in some manner violating regulations.

Although the application of traffic regulation by radio is sufficiently complex to require careful planning, we hope that reader interest will be aroused to the extent of commenting on the basic concept. Further discussion will be welcome.

Reference Notes

Report on Assignments Committee #9—Highways American Railway Engineering Association Merits of Various Types of Highway-Railway Grade Crossing Protection, Collaborating with Signal Section, AAR, and Highway Research Board

G. P. Palmer (chairman, subcommittee), H. D. Blake, P. W. Elmore, A. S. Haigh, W. J. Hedley, T. J. Jaynes, R. E. Nottingham, Walker Paul, W. C. Pinschmidt, S. H. Pratt, C. H. Reisinger, P. T. Simons, R. E. Warden, Charles Weiss, J. W. Wheeler.

YOUR committee submits the following report of progress on the merits of various types of grade crossing protection as information.

The committee this year desires to report on a study and analysis of various types of grade crossing protection on the Wabash Railroad covering a period of 20 years ending with the calendar year of 1948. That study was based upon a complete record of the changes made in crossing protection and a corresponding record of the accidents which occurred during the 20-year period. The comparative effectiveness of the several types of grade crossing protection was determined by comparing the accident records before and after the change in protection.

The complete study and report is published in the Proceedings of the American Railway Engineering Association, Vol. 50, 1949, pages 849 and 864.

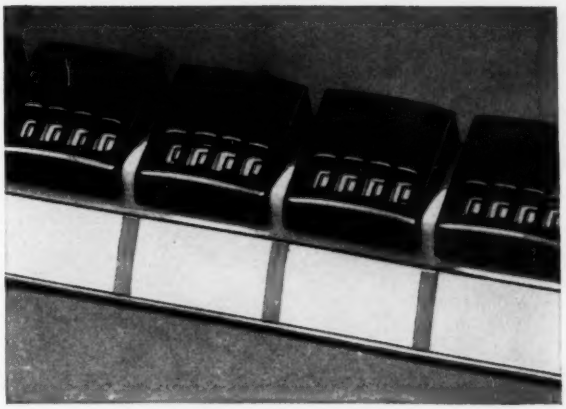
The final conclusions were stated in the form of "Accident Quotients," which show the average number of accidents per crossing per year at comparable crossings protected by the several types of protection.

TABLE 1.—ACCIDENT QUOTATIONS FOR SEVERAL TYPES OF PROTECTION

Type of Protection	*Accident Quotient*
Automatic gates—multiple track	0.0925
Manual gates—24 hours	0.1513
Flashing lights—single track	0.1773
Wigwag	0.2936
Flashing lights—multiple track	0.3044
Manual gates—part time	0.3520
Watchmen	0.3581
Automatic bells	0.3941
Reflector signs—AREA Standard	0.4450
Painted crossbuck signs	0.5038
Reflector signs—Michigan standard	0.8156

It will be noted that automatic gates, having the smallest accident quotient, proved to be the most effective form of protection, followed by other types which give warning of the approach of a train, and that those types of protection, such as painted or reflectorized signs, which merely indicate the location of the railroad, are relatively less effective. It is interesting to note the relative ineffectiveness of watchmen and automatic bells in comparison with automatic gates and flashing light signals, which are currently recommended by the AREA.

The Wabash Railroad report is recommended for your careful consideration and acceptance as information. Similar reports on other groups of crossings would be most welcome where the necessary data are available for analysis over a period of years.



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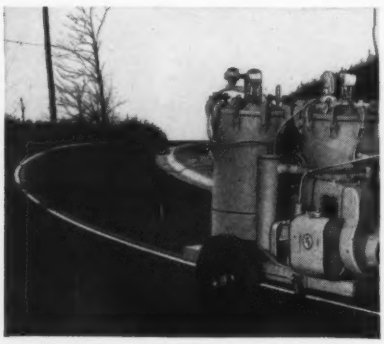

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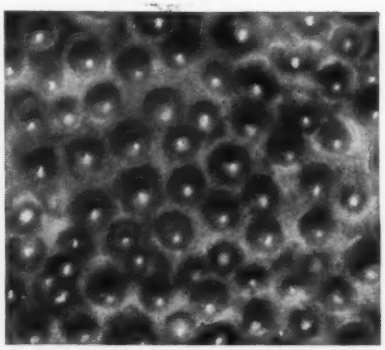

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TRAFFIC NEWS

Iowa Safety Congress Endorses Traffic Engineering

At the recent Iowa Safety Congress the Traffic Engineering Committee endorsed the engineering principles contained in the report of the President's Highway Safety conference held at Washington, D. C., June 1, 2, and 3, 1949.

The following specific measures were included in the recommendations for the Iowa action program:

1. Recognizing that greater safety on the highway can be obtained by more extensive application of sound engineering and maintenance measures, it is recommended that trained engineers with proper experience be placed in the appropriate organizations and given adequate remuneration, assurance of continuity in tenure of their positions, and reasonable opportunities for advancement.

2. In specific recognition of the need for better staffing of official agencies concerned with highway engineering and traffic problems, it is recommended that there be established:

a. In cities of more than 100,000 population, a traffic engineering department comparable in authority and influence to other major divisions of the city department in charge of engineering functions.

b. In cities having between 50,000 and 100,000 population at least one full-time traffic engineer responsible to the city manager or city engineer and vested with sufficient authority to insure the adoption of appropriate engineering measures for traffic operation and safety.

c. In cities having less than 50,000 population, an engineer, preferably the city manager or city engineer or someone responsible to either of these two officials—with qualifications and experience necessary to perform the functions of traffic engineer.

d. In the counties an active cooperation of the county engineer with the Safety and Traffic Department of the Iowa Highway Commission and with the city traffic engineers on all activities related to highway safety and highway traffic.

3. Establishment of an annual school of instruction in traffic engineering, to be attended by the county and city employees and officials responsible for traffic engineering functions.

4. It is recommended that appropriate authorities adopt as their working standard the Iowa Manual on Uniform Traffic Control Devices which follows closely that prepared jointly by the American Association of State Highway Officials, the Institute of Traffic Engineers, and the National Conference on Street and Highway Safety, as revised and published in 1948.

5. It is recommended that the basic principles of Article VI, Act V, Uniform Vehicle Code, be adopted, Article VI provides for the establishment of speed restrictions and, among other provisions, authorizes speed zoning and prescribes separate day and night speed limits.

6. It is recommended that provisions be made for off-street parking facilities as the ultimate solution of the parking problem in congested urban areas.

7. In order that traffic safety receive the emphasis it demands in urban-redevelopment and in new land development, it is recommended that appropriate housing, planning, and engineering officials consider the traffic safety and traffic requirements of all land development proposals, and introduce whatever justified, added facilities or revised street and land-use plans that will promote traffic safety.

8. It is recommended that provisions be made for continuous planned programs of publicity, education, and law enforcement, without which the many benefits of engineering contributions to traffic safety cannot be obtained.

800 Graduates of Traffic Training Courses

A Roster of Long-Course graduates of New York University's Center for Safety Education, Northwestern University's Traffic Institute, and the Yale Bureau of Highway Traffic has been published by the Automotive Safety Foundation, 700 Hill Building, Washington, D. C., for selective distribution. It lists by state and city the names, titles and addresses of some 800 men and women who have completed graduate courses in teacher training at New York University, traffic police administration at Northwestern University, and traffic engineering at Yale University. It is expected to be of particular value to public officials and organizations seeking the assistance of those who are qualified by specialized training to deal with traffic matters within their fields.

Second Annual ITE Award Winners Announced

Nation-wide traffic engineering awards were announced recently by the Institute of Traffic Engineers. All 48 states and 594 cities participated in the contest, which covered the calendar year 1949. According to Wilbur S. Smith, President of the Institute, plaques will be awarded to the 6 winning states and 10 cities which, in the opinion of judges, reported an engineering program deserving national recognition. Presentations were made in May and June by representatives of the Institute of Traffic Engineers.

The awards are in recognition of outstanding traffic engineering achievement

during the past year. All engineering functions in traffic are reviewed, including control devices, surveys and studies, lighting, intersection design, administration, and planning. President Smith stated that "States and Cities selected for awards showed that traffic engineering responsibility had been definitely assigned by ordinance, resolution, or executive order. Such recognition should also serve to stimulate greater interest in the need for taking inventory of traffic engineering activities in every city and state."

The awards by states were decided in four regional groups and a fifth group including the eight most thickly populated states with greater similarity in traffic problems. The states capturing the award for outstanding performance in traffic engineering during 1949 and the runner-up are:

Group I (Eastern Region)
Duplicate First Place Award: CONNECTICUT & MASSACHUSETTS

Group II (Southern Region)
First Place: VIRGINIA
Second Place: TENNESSEE

Group III (Midwest Region)
First Place: MINNESOTA
Second Place: WISCONSIN

Group IV (Western Region)
First Place: UTAH
Second Place: WASHINGTON

Group V (Heavy population)
First Place: MICHIGAN
Second Place: CALIFORNIA

Winning cities and the runner up for the year 1949 are:

Group I (1,000,000 pop. & over)
First Place: DETROIT, MICHIGAN
Second Place: LOS ANGELES, CALIFORNIA

Group II (750,000-1,000,000 pop.)
Duplicate First Place Award: WASHINGTON, D. C. & CLEVELAND, OHIO

Group III (500,000-750,000 pop.)
First Place: PITTSBURGH, PENNSYLVANIA
Second Place: BUFFALO, NEW YORK

Group IV (200,000-500,000 pop.)
First Place: SYRACUSE, NEW YORK
Second Place: CINCINNATI, OHIO

Group V (100,000-200,000 pop.)
First Place: ARLINGTON, VIRGINIA
Second Place: SOUTH BEND, INDIANA

Group VI (5,000-100,000 pop.)
Duplicate First Place Award: FRESNO, CALIFORNIA & EVANSTON, ILLINOIS

Group VII (25,000-50,000 pop.)
First Place: BURLINGTON, OHIO
Second Place: BELMONT, MASSACHUSETTS

Group VIII (10,000-25,000 pop.)
First Place: WILMETTE, ILLINOIS
Second Place: STILLWATER, OKLAHOMA

The awards were based on information submitted in the Traffic Engineering Section of the Annual Inventory of Traffic Safety Activities (formerly known as the National Traffic Safety Contest). The Chairman of the Committee of Judges is Thomas H. MacDonald, Commissioner, U. S. Bureau of Public Roads. D. Grant Mickle, Director, Traffic Engineering Division, Automotive Safety Foundation, served as Technical Advisor to the Board of Judges, officially representing the Institute.

SECTION NEWS

Michigan Section

The annual meeting was held in Lansing at the Reo Club House with thirty-eight (38) members and guests in attendance.

Following the dinner, President LeRoy called the meeting to order. Carl McMonagle briefly discussed the proposed Governor's Highway Conference for 1951. Action on this matter was tabled for a future meeting. Mr. Malo then discussed the coming Michigan State-wide Safety Conference. The first day's meeting will be held at the Book-Cadillac Hotel, with the second day's meeting at the Fort Shelby.

The president then declared the meeting open for the election of officers. The officers elected for the coming year were as follows:

President, Harold G. Bauerle
Vice-President, Arthur C. Gibson
Secretary-Treasurer, Albert C. Sherman

Following the election of officers, Mr. LeRoy extended his thanks to all who had helped make his tenure of office a success. He then turned the meeting over to the new president.

Mr. Bauerle expressed his appreciation to the membership for the honor bestowed on him. He informed the group that he was setting a new precedent and named the Vice-President as chairman of the program committee. He said he would appoint, at a later date, other members to assist Mr. Gibson; such members to represent the various geographic areas covered by the membership.

There was some discussion as to the feasibility of holding the June meeting at Bay City. It was decided that further action on this matter would be taken at the next meeting, which would be held in Detroit.

The president then introduced Mr. James Lewis of the Capital Film Company who showed several interesting films, after which some of the members attempted to get back the price of the meal by manipulating the paste boards.

A. C. Sherman
Secretary-Treasurer

Western Section

The Portland Area of the Western Section of the Institute of Traffic Engineers held a luncheon at Berg's Chalet Saturday, April 15, at 12 noon. There were six members and eight guests in attendance. The members present were F. B. Crandall, Fred Fowler, Val Johnson, Carlton Robinson, Lynn Stewart and myself. Guests present were Marion Beardsley, Donald Chalmers, Lee Kies, Joe Gately, P. H. Michael, Roy Fielding, Gilbert Stein and Jay Blair. The subject of speed zoning and signing, both urban and rural, came in for quite a bit of discussion, as did the general subjects of permanent traffic recording equipment in urban areas which could be used to determine 30th peak hours and other necessary data for design purposes. Signalization and channelization also got the usual working over.

After about an hour and a half of discussion on the above and other related subjects, the matter of "Local Section Affiliate" was brought up, and it was the concensus of the group, not only the members, but guests, that such a membership grade would be advisable. The actual implementation as regards qualifications and the like were not delved into, but the Portland Area would support such a membership grade in the Western Section. Some consideration was given to the monetary aspects of such a grade as to whether such should be a "package job"—that is, with a subscription to Traffic Engineering at $3.50 and our local dues of $1.00 being made at a unit price of $4.50. The group was about evenly divided on the above proposal as against letting the subscription to the magazine be optional.

The next meeting of the Portland Area will be held in Salem Friday, May 12, with an inspection of the Traffic Engineering Division of the Oregon State Highway Department in the afternoon, and a dinner hour from 6 to 8 P.M. at one of the local hotels.

J. Al. Head
Secretary-Treasurer

New Appointments . . .

CHARLES M. UPHAM, engineer-director of the American Road Builders' Association, retired from active administration of the country's oldest national good roads organization. The Board of Directors of the Association retained him as consultant at full salary

until his 65th birthday next March and engaged him as consultant for five years thereafter to assist in ARBA's policies and program.

In replying to the announcement made by Col. Enoch R. Needles, New York consulting engineer who was named to serve another term as ARBA president, Mr. Upham declared that if his wealth were to be judged by one of the true values, his vast number of friends, he'd have to be counted as "one of the richest men in the highway industry and profession."

He served for three years as secretary of the American Association of State Highway Officials.

Honors which came to him after he assumed the engineer-directorship in 1926 include the George S. Bartlett Award in 1946 for outstanding achievement in highway work; designation as winner in 1949 of the award of Sigma Tau, national engineering fraternity, for distinguished professional attainment; service as U. S. representative to the Eighth International Road Congress in the Hague, Netherlands, in 1938 under appointment by the late President Roosevelt; official advisor to the United States Delegation to the Fourth Pan American Highway Congress held in Mexico City in 1941; membership on the engineering committee of the President's Highway Safety Conference; and vice-presidency of the Eno Foundation for Traffic Control.

Communities in the New York area seeking a cure for local traffic and parking headaches will receive expert traffic engineering and city planning assistance from the Automobile Club of New York under an expanded program announced recently by Martin Klein, di-

rector of the club's Traffic Engineering and Safety Department. LESLIE WILLIAMS was recently appointed to the club's staff to help develop the expanded program.

Les was traffic and planning engineer for the American Transit Association from 1944 to 1948. Before that, he directed the Civic Planning and Traffic Board at Providence, R. I., and served as that city's War Transportation Administrator. He was an instructor for 3 years in traffic engineering at Yale University's Bureau of Highway Traffic and served as a traffic and planning consultant to 24 cities in 13 states. He is widely known as a writer and speaker on technical traffic and planning subjects and is a former editor of *Traffic Engineering*.

He holds master's degrees in city planning and traffic engineering from Harvard University and is a member of the American Society of Civil Engineers, Institute of Traffic Engineers, American Institute of Planners, American Society of Planning Officials, and the American Planning and Civic Association.

MEMBERSHIP INFORMATION
may be obtained by writing to:
Executive Secretary
Institute of Traffic Engineers
212 Strathcona Hall
New Haven 11, Connecticut

Secretary's Column

In the January issue of *Traffic Engineering* magazine your Executive Secretary reported action of the Board of Direction at its December, 1949 meeting. At that time, the Board approved a policy statement outlining the duties and responsibilities of the Executive Secretary to be used as a guide by the Board, the elected Secretary-Treasurer and the Executive Secretary. In essence the statement placed on the official record the duties of the Executive Secretary has been performing since taking office April 1, 1947. These duties are as follows:

1. The Executive Secretary shall arrange for, attend and record proceedings of all meetings of the Institute and the Board of Direction.
2. He shall conduct correspondence of the Institute and keep a complete record of same.
3. He shall have direct responsibility for preparing and publishing Proceedings of the Annual Meeting, "Traffic Engineering" magazine, Yearbook and other matters deemed worthy of permanent record.
4. He shall have charge of Institute Headquarters and all its properties.
5. He shall be responsible for, and supervise the duties and work of, headquarters staff personnel, and shall make such changes as may from time to time seem desirable in the best interests of the Institute.
6. He shall, with the assistance of the Secretary-Treasurer, prepare annually a budget for consideration and approval of the Board of Direction. All expenditures shall be in accord with the approved budget.
7. He shall see that all monies due the Institute are carefully collected, and deposited to the appropriate banking account.
8. He shall carefully scrutinize all expenditures and use his best endeavor to secure economy in the administration of the Institute.
9. He shall personally certify the accuracy of all bills or vouchers on which money is to be paid, and shall sign all checks drawn against the funds of the Institute. In case of his absence or disa-

bility checks will be signed by a duly authorized official.

10. He shall have charge of the books of account of the Institute, and shall furnish monthly to the Secretary-Treasurer (and a copy to the President) for audit and approval, a statement of receipts and expenditures under their several headings, and also a statement of monthly balances. He shall present annually to the Board of Direction, a balance sheet of his books, and shall furnish from time to time such other statements as may be required of him.

In addition, the Executive Secretary will perform such other duties and responsibilities which, from time to time, may be prescribed by the Officers and Board of Direction.

Robert S. Holmes

LOOKING AHEAD

AUGUST 13-16, 1950—LOS ANGELES, CALIFORNIA
American Society of Planning Officials. Hotel Biltmore.

AUGUST 21-24, 1950—PASADENA, CALIFORNIA
National Technical Conference. Illuminating Engineering Society. Hotel Huntington.

SEPTEMBER 11-14, 1950—PORTLAND, OREGON
American Association of Motor Vehicle Administrators. Multnomah Hotel.

SEPTEMBER 18-21, 1950—NEW YORK, N. Y.
55th Annual Convention. International Municipal Signal Association, Inc. Hotel Commodore.

SEPTEMBER 24-27, 1950—NEW YORK CITY, N. Y.
Annual Meeting. Institute of Traffic Engineers. Hotel Commodore.

SEPTEMBER 25-27, 1950—LOS ANGELES, CALIFORNIA
American Transit Association. Biltmore Hotel.

OCTOBER 7-12, 1950—COLORADO SPRINGS, COLORADO
57th Annual Conference, International Association of Chiefs of Police. Antlers Hotel.

OCTOBER 9, 10 & 11, 1950—CHICAGO, ILLINOIS
Annual Meeting. National Council of State Boards of Engineering Examiners. Congress Hotel.

OCTOBER 15-18, 1950—NEW YORK, N. Y.
American Public Works Association. Hotel New Yorker.

OCTOBER 16-20, 1950—CHICAGO, ILLINOIS
38th Annual Safety Congress & Exposition. National Safety Council. Stevens Hotel.

NOVEMBER 26-30, 1950—HOUSTON, TEXAS
International City Managers' Association. Shamrock Hotel.

DECEMBER 4-7, 1950—MIAMI, FLORIDA
36th Annual Meeting. American Association of State Highway Officials.

Heads Road Builders

Lt. Gen. Eugene Reybold, wartime Chief of Engineers, U. S. Army, is the new executive vice-president of the American Road Builders' Association, with headquarters in Washington, D. C. He succeeds Charles M. Upham, who recently retired, as the administrative head of America's oldest national good roads organization.

"Getting Results" Cash Award Continued

To encourage a continuing exchange of traffic engineering ideas between cities and communities throughout the country, a 1950 cash award of $100 is announced by the accident prevention department of the Association of Casualty and Surety Companies for the best example of a traffic engineering project that has effectively reduced accidents or congestion.

Announcement of the award has been mailed to over 2,400 traffic officials in this country who regularly receive the Association's bulletin, "Getting Results Through Traffic Engineering," as well as to the membership of the Institute of Traffic Engineers and other interested professional groups.

A similar award was offered in 1949 and was won by Edgar F. Copell, traffic engineer for the Massachusetts Department of Public Works. His submission was the reconstruction of a highway curve which reduced accidents involving personal injuries by 78 per cent (p. 242, March *Traffic Engineering*).

The award, according to Julien H. Harvey, manager of the accident prevention department, is designed to encourage engineers, police and traffic officials to make known their successful projects and thus share with other communities the techniques which have proved effective in saving lives and reducing property damage.

In explaining eligibility requirements for the competition, Mr. Harvey emphasized that the award will be given for the best example of improved traffic conditions published by the Association during the year. The winner will be chosen solely on the basis of the quality of his submitted project. Engineers, police officials and traffic specialists are eligible to compete. The following rules should be followed:

Form: Included should be a statement of the problem, any studies made, the solution, accident and congestion facts for a comparable period "before" and "after" the improvement, costs of the improvement when possible, and any other information concerning the effect of the improvement. Photographs and sketches are desirable.

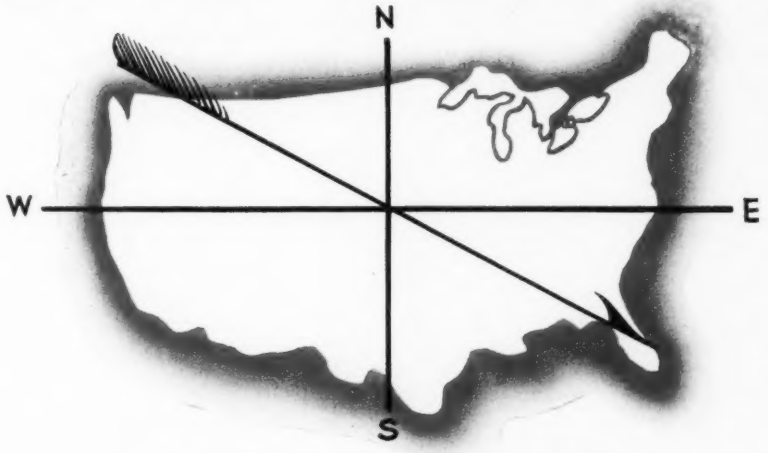
Scope: Example showing the benefits of a single traffic control device or traffic engineering measure are preferred. Where many different improvements are made simultaneously, the value of any one improvement cannot be accurately measured.

Selection: The prize-winning example will be graded on the following factors —effectiveness in reducing accidents and congestion, adequacy of factual data and illustrative material, survey methods used, relationship of benefits to costs, and originality with respect to previously published examples.

Judges of the contest will include representatives of the American Association of State Highway Officials, Institute of Traffic Engineers, International Association of Chiefs of Police, National Safety Council, and Yale Bureau of Highway Traffic.

Mr. Harvey invited all officials interested in learning how their contemporaries are solving traffic problems to request the free bulletin, "Getting Results Through Traffic Engineering," and to enter the 1950 competition for the award. Examples should be sent to the Accident Prevention Department, Association of Casualty and Surety Companies, 60 John Street, New York 7, N. Y.

All Over America...



More Cities are installing more

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AUTOMATIC PARKING METERS

Join the list of progressive cities where *one* Alfco Twin Automatic Parking Meter parks *two* cars! . . . Consider these savings! . . . About *one half* the number of *meters to install, clocks to wind, meters to service, collection stops to make!* More room for cars. No reduction in spaces! Fewer accidents! Better traffic control! Write us today.

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Blairsville, Penna.
Bremen, Georgia
Cheviot, Ohio
*Clanton, Alabama
Coraopolis, Penna.
Corpus Christi, Texas
Dansville, New York
Denison, Texas
*Detroit, Michigan
East Detroit, Michigan
East Palestine, Ohio
El Campo, Texas
Elizabeth, N. J.
Elmira, New York
*Evansville, Indiana
Falfurrias, Texas
*Freeport, L. I. N. Y.
*Fremont, Nebraska
Glen Cove, L. I. N. Y.
Grand Prairie, Texas
Greensboro, N.C.
Hammond, Indiana
Hamtramck, Michigan
Keeseville, New York
Keyser, West Virginia
*Kingsville, Texas
Lake City, S. C.
Lancaster, Penna.
*LeRoy, New York
*Manchester, Conn.
Naugatuck, Conn.
Johnson City, Tenn.
Kingsport, Tenn.
Klamath Falls, Oregon
Waco, Texas
Liberty, Kentucky
Mansfield, Penna.
Marlin, Texas
Metropolitan District Commission, Boston, Mass.
*Montpelier, Ohio
Mount Healthy, Ohio
Mount Vernon, Indiana
New Bern, N. C.
Newberry, S. C.
*Newburgh, New York
North Arlington, N. J.
*Norwich, New York
Penn Yan, New York
Plymouth, Penna.
Portage, Wisconsin
Princeton, Indiana
Robstown, Texas
*San Antonio, Texas
South Fork, Penna.
Spooner, Wisconsin
Stamford, Conn.
Sussex, New Jersey
Tallahassee, Florida
*Uniontown, Penna.
University City, Mo.
*Washington National Airport
Westbury, L. I. N. Y.
West Haven, Conn.
Wewoka, Oklahoma
Windber, Penna.
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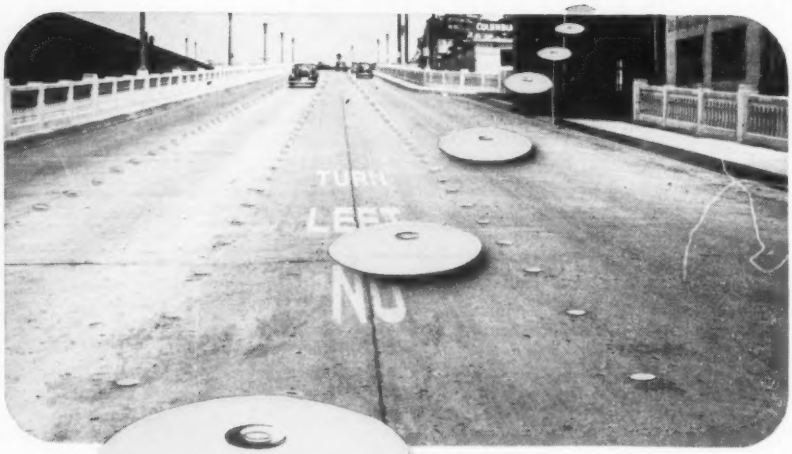

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Saves 1/2 to 2/3 cost of paint! Painted lines mean repainting and maximum labor cost. Testing in trial cities proves DUR-O-LINE to last 4 to 6 years and cuts labor costs to a minimum.

DUR-O-LINE makes marked streets more attractive... the brilliant markers do not fade or smear. DUR-O-LINE markers have three times the visibility of painted lines. They are designed to withstand severest traffic conditions. Load tests prove them to carry 15 times the maximum legal load limit. They are constructed of tough plastic, permanently color molded in brilliant yellow or dead white.

ADAPTABLE TO MANY USES! DUR-O-LINE markers are ideal for separating traffic lanes... especially effective for cross-walks at busy intersections. Private businesses find DUR-O-LINE markers the most economical method of marking parking stalls.

SPECIAL SAMPLE OFFER!
As a special trial offer 200 markers and laying material for 400 to 1200 linear feet is available for only $52 ($67 for concrete streets). Use this sample offer on your busiest street!

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PERSONAL ITEMS

The *Institute* was well represented at a recent two-day meeting of the I.E.S. Committee on Street and Highway Lighting in Philadelphia. Messrs. HOWARD ILGNER, OTTO ORTLIEB, CHARLES REX, KIRK REID, and HANK OSBORNE were on hand as active participants in the discussions . . . We are awaiting further word on the "background" of a recent note from CLIFF CLARK, written on 'Waikiki Hotels" stationery. Cliff mentioned GEORGE HOUGHTAILING'S masterpiece—a large scale model of a proposed "traffic jam?" at a busy intersection—as evidence that he was actually in the Islands . . . Speaking of travels reminds us that ELIOT PARKER has been taking in a lot of good old U. S. A. terrain on frequent "business trips" for the Army, and he doesn't care much for travel . . . GENE MAIER still "needling" the southern area members for "Traffic Engineering" material, trying to keep ahead of the other active Associate Editors . . . JOE HAVENNER appointed chairman for the Western Section Annual Meeting in August . . . The "F and F Club," predecessors of the Midwest Section, ITE, busily preparing to play host to the Institute's Board of Direction at their *annual meeting* at Balsam, Wisconsin . . . GEORGE COGGER, formerly with the City of Dallas, is now with RALPH DORSEY at the Los Angeles City Hall . . . The "Westernite," official bulletin of the Western Section, has recently published a series of stories reported by WARREN E. "STANLEY" DE YOUNG, giving a lurid account of his trek into the wilds of Texas to find "DR. LIVINGSTONE" BRANDES. Contact J. AL HEAD, Secretary of the Western Section, for further details . . . DR. DON BERRY of the University of California's Institute of Transportation and Traffic Engineering being ably assisted by "Professor" ROSS SHOAF as part-time instructor . . . World traveller BOB SWAIN checking into Washington now and then before beginning another global tour . . . The Executive (advisory) group of the Annual Meeting Committee for Local Arrangements in frequent sessions to assure a successful convention in September. Attending the last policy meeting were: MAYNARD BEBEE, LARRY LAWTON,

GRAHAM COLE, ALDEN WELCH, "TEKE" WILEY, MER KRAFT, ROGER GILMAN, and General Chairman ED WETZEL . . . HANK EVANS and BOB ALLEN diligently struggling to get the revised "Traffic Engineering Handbook" completed for distribution, under the supervision of JULIEN HARVEY and the Editorial Board . . . The Indiana ITE'ers, led by JOHN BUNCH, stirring up a brand new Indiana Section of the Institute . . . TONY CARROTHERS riding successfully through administrative changes and coming up with a sound program of traffic improvement . . . Your Executive Secretary climbing into khaki for a brief 14-day "hitch" in the office of Chief of Transportation in Washington under the watchful eye of KEN CHACEY . . . We learn that SAVILLE DORFMAN is still alive through reading a series of articles he wrote for "South African Municipal Magazine"—the subject: traffic engineering . . . DEAN FRAVEL moving about so fast a "change of address" notice in every issue of "TE" magazine . . . CHARLIE LECRAW becoming an expert "commuter" into the *big city* from Westport.

GETTING RESULTS

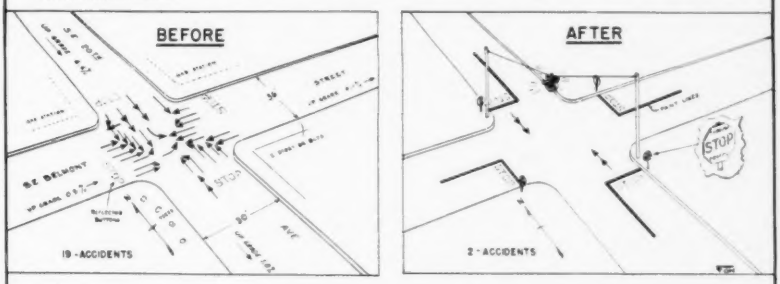
THROUGH TRAFFIC ENGINEERING

NO. 11

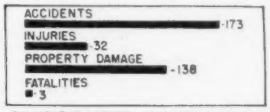
TRAFFIC SITUATION No. 11

ACCIDENTS REDUCED 60% AT FIFTEEN INTERSECTIONS

PROBLEM—Intersection traffic accidents were increasing steadily in Portland, Oregon. Outstanding were fifteen intersections, nine in the business district and six in the residential district. Each of these comprises two intersecting through streets at which four-way "Stop" regulators were being used. A typical example, S. E. 20th Avenue and S. E. Belmont Street is shown above.



ACCIDENT FACTS—In a six months' period prior to improvement, 173 accidents had occurred at these fifteen intersections—three fatal, thirty-two injury, and one hundred and thirty-eight property damage. In the "before" illustration of the above example are shown nineteen accidents which occurred during a sixteen months' period prior to improvement. Eleven were right-angle collisions, four rear-end, three sideswipes due to turning movements and one a head-on collision also due to turning. This indicates that nearly all the accidents were caused by a violation of the "Stop" regulators.

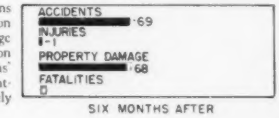


SIX MONTHS BEFORE - AT 15 INTERSECTIONS

FIELD STUDIES—Field studies showed the need for greater emphasis on the "Stop" regulation. Observations revealed frequent disregard of stop sign and unsafe driving practices similar to those resulting in accidents as pictured above.

SOLUTION—In addition to the word "Stop", pavement lines were painted, and reflectorized Stop Signs reading "Stop—Through Traffic" were installed on each approach. A suspension type flashing beacon was also installed at the center of each intersection. See "after" illustration above. The cost of each installation ranged from $100 to $175 per intersection, including cost of equipment, labor and use of tower truck for installation.

CHECK BACK—There were sixty-nine accidents at the 15 intersections during a six months' period after improvement. This indicates a reduction of 60%. Of the sixty-nine accidents, sixty-eight were property damage and one injury. Fatalities were entirely eliminated. At the intersection S. E. Belmont Street and S. E. 20th Avenue during a sixteen months' period, see illustration above, accidents were reduced 90%. All right-angle collisions and those involving turning movements were entirely eliminated.



SIX MONTHS AFTER

This "review" series of selected Getting Results examples is published through the courtesy of the Accident Prevention Department, Association of Casualty & Surety Companies, formerly known as the National Conservation Bureau.

Example Contributed By

F. T. Fowler,
Traffic Engineer
Portland, Oregon

ON THE SHELF

Compiled by

Mrs. Kathryn Cassidy, Librarian
Yale Bureau of Highway Traffic

American Association of Motor Vehicle Administrators and the American Optometric Association
Manual on driver's vision test. Pittsburgh, Penn., The Assoc., 1949. 36p. n.p.

American Automobile Association
A teacher training course in driver education and training. Wash., D. C., The Assoc., 1949. 113p. n.p.

American Transit Association and the National Safety Council
Proceedings of the National Transit Safety Council. New York, The Assoc., 1949. 70p. n.p.

California University. Institute of Transportation and Traffic Engineering
Proceedings of the California Institute of Transportation and Traffic Engineering, January 31 to February 2, 1949. Berkeley, Calif., The Univ., 1949. 220p. $1.00.

Hedley, W. J.
The achievement of grade crossing protection. A report before the 48th annual convention of the American Railway Engineering Assoc., 1949. 16p.

Highway Research Board
Bulletin No. 20. *Pavement performance.* Washington, D. C., The Board, 1949. 70p. 90c.

Highway Research Board
Bulletin No. 21. *Maintenance costs.* Washington, D. C., The Board, 1949. 20p. 15c.

Highway Research Board
Selected bibliography on highway safety. Supplement No. 1. Wash., D. C., The Board, 1949. 12p. n.p.

Highway Research Board
Thickness of flexible pavements. Current road problems. No. 8-R. Washington, D. C., The Board, 1949. 49p. n.p.

Ill. Chicago. Transit Authority
Effect of rush hour parking control on street traffic and transit operation. Chicago, The Authority, 1949. Unpaged. n.p.

Institute of Traffic Engineers
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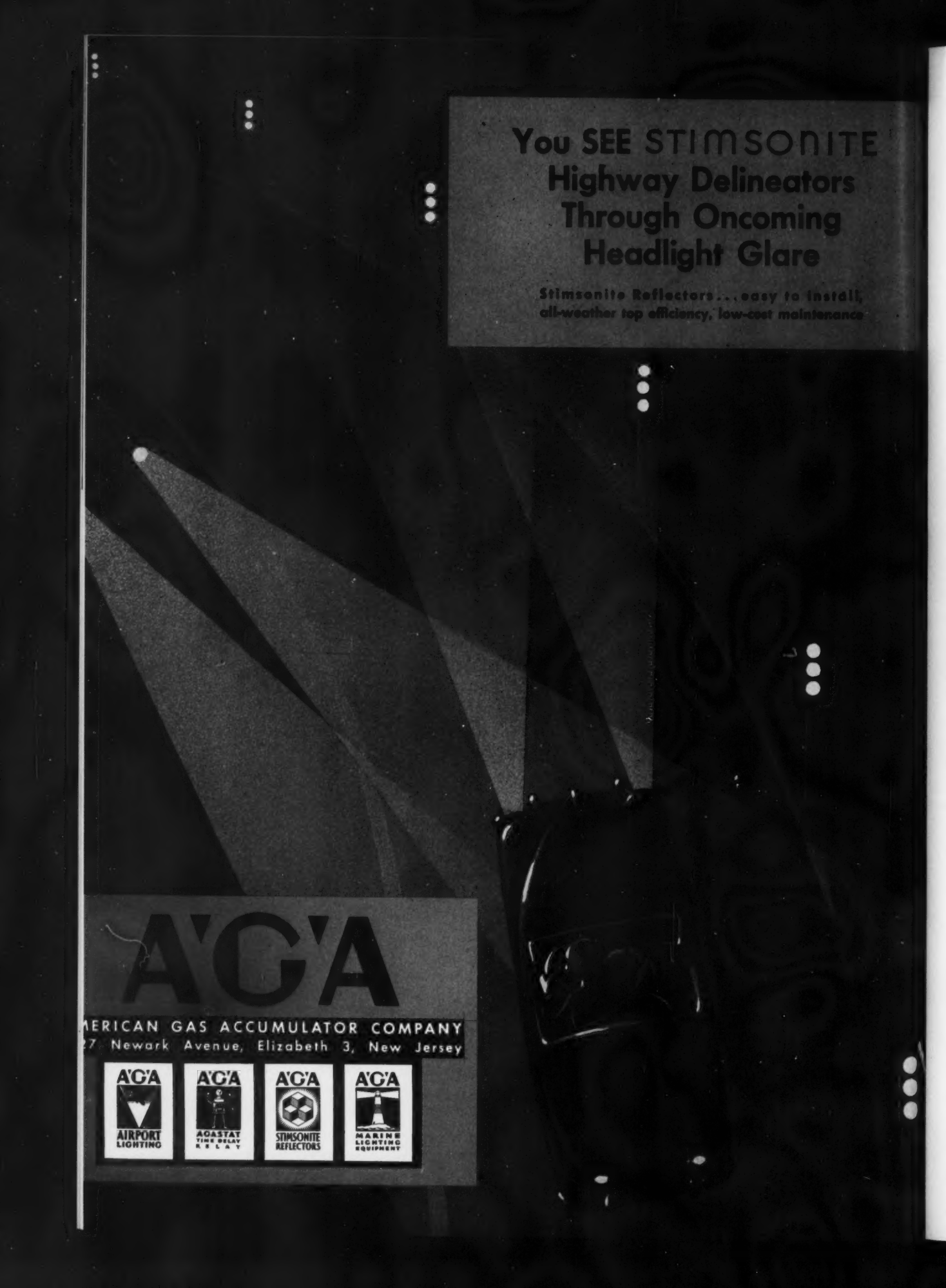
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DETROIT found the ANSWER

In Detroit, Michigan, a six-month comparative test of five makes of automatic parking meters proved again that PARK-O-METER performance *excels in all ways.* The following tabulation, compiled from statistics supplied by the City Treasurer's office and the Bureau of Traffic Engineering *(Detroit),* tells the whole story. Park-O-Meters not only averaged more revenue per meter, they also were operated at less expense for service and maintenance. More than 1361 operations per service call! Nearly *three times better* than the nearest competitor.

Service calls cost money, mean lost revenues, and cause public dissatisfaction. Can your city afford to install any parking meter other than PARK-O-METER?

	PARK-O-METER	Rank	METER A	Rank	METER B	Rank	METER C	Rank	METER D	Rank
Number of Meters	299	2nd	282	3rd	274	4th	215	Last	311	1st
Total Revenue	$27,637.95	1st	$10,875.50	Last	$14,936.70	3rd	$17,852.25	2nd	$12,646.65	4th
Average Revenue Per Meter	92.43	1st	38.57	Last	54.51	3rd	83.03	2nd	40.66	4th
Number of Times Used	552,759	1st	217,510	Last	298,734	3rd	357,045	2nd	252,933	4th
Number of Service Calls	406	Lowest	1,310	Highest	629	2nd	830	4th	726	3rd
Operations Per Service Call	1361.5	1st	166.0	Last	474.9	2nd	430.2	3rd	349.4	4th
Number of Times Mechanism Rebuilt	None	1st	Once	Tie 2nd	Once	Tie 2nd	Once	Tie 2nd	Once	Tie 2nd
Number of Times Mechanism Replaced	None	Tie 1st	Twice	Last	None	Tie 1st	Once	Tie 2nd	Once	Tie 2nd
Number of Times Cases Replaced	None	Tie 1st	Once	Last	None	Tie 1st	None	Tie 1st	None	Tie 1st

PARK-O-METER has ALL 39 important features

Sincere city officials all over the nation . . . men who are honestly trying to serve their public . . . enthusiastically praise Park-O-Meter's new, simple yet complete check list that enables them to determine, POINT BY POINT, the desirable features of ALL MAKES of parking meters. Once they have it down in black and white they KNOW which meter will serve their purpose best.

CHECK THEM YOURSELF

Send for your supply of check charts — compare all meters feature by feature, then choose. Write now — they're free, no obligation, of course!

Magee-Hale
PARK-O-METER COMPANY

OVER 600 CITIES *Know* WE KNOW HOW

Personalities . . .

WARREN E. "SKINNY" DE YOUNG was born in time to be refused admittance to the Michigan Volunteers for service in the Spanish American tussle. (Comment: no doubt because a triangle and safety-pin was not considered "regulation" for that

scrap). He was likewise refused in the Boxer Rebellion. (Same reason, probably).

His first traffic job consisted of getting his graduation class of the McBain (don't look for it on the map) High School on to the Presbyterian Church Rostrum. There had been only one graduate at a time before his record-breaking class of four. This created a marching problem but he handled it with ease.

Frank Rogers was running the Michigan Highway in those days and needed a good man. De Young went to Michigan State to learn how to chop brush ahead of a transit and hold a numbered stick straight for other guys to look at. It took him six years to finish a four year course, due largely to a signed statement by the President of the United States which said that De Young had great military ability and made him a "second Looey". It took two years in Europe to disprove this.

With considerable help from faculty and friends Skinny finished Michigan State in 1920 with a B.S. degree, which of all the letters he can sign after his name, his wife insists, are still the most apropos.

Ordinary highway work occupied his time in Michigan, Wisconsin and Illinois for the next four years. A dubious distinction of this era was a "semi-professional?" association with Hawley Simpson.

(See DE YOUNG, *page 369)*

GEORGE J. FISHER began life in the small Ohio town of Eaton, and graduated from high school there. In 1921, he entered Antioch College, under Dr. Arthur E. Morgan, when the latter was initiating the cooperative course at that school. It took George five and a

half years to get through Antioch, but during that period he worked half-time and went to school half-time in order to get both theoretical and practical experience in engineering.

After graduation from Antioch, he spent four years with the General Electric Company in their test course and ended up in the Steam Turbine Engineering Section. He left this job in 1930, and the village of Eaton cornered George again as a high school teacher, of physics, chemistry and mathematics.

Early in 1940, Harry Neal began his intensive program of state traffic engineering in Ohio, and George, who was then working for the State Highway Department in Middletown as an Assistant Highway Engineer, was given the job of District Traffic Engineer. He wasn't in this job long, because in the fall of 1940 he entered Yale University's Bureau of Highway Traffic. Upon graduation in 1941, he returned to the Ohio Department of Highways in Neal's office in Columbus, as Assistant State Traffic Engineer. Later he was made Assistant Chief Traffic Engineer.

He served in this capacity until May of 1944, then went to Oak Ridge, Tennessee, as Traffic Engineer for that city. After a year of this work, George returned to the Ohio Department of Highways as Assistant Traffic Engineer and conducted many municipal traffic surveys under Neal's guidance.

In May of 1947 George was offered the opportunity of becoming Traffic Engineer for the City of Wichita, Kansas, and accepted the position. He was not only designated the City Traffic Engineer, but also Superintendent of Streets and Sewers, and consequently became responsible for the entire operation of the street system in that city.

For the past three years, George has been able to successfully establish a one-way street system in Wichita, have all angle parking changed to parallel parking, develop a system of one-way alleys for truck loading and unloading purposes, and many other benefits to the traffic flow and safety in the city.

George is registered as a Professional Engineer in Ohio (1934), and in Kansas. He has been a member of the Institute since 1940, and is now serving as Chairman of the ITE Committee on Traffic Engineering Administration.

George likes to bowl pretty well, but most of his time is taken up in attempting to solve traffic matters in a fast-growing city and in trying to keep the streets and sewers in good shape for the taxpayers. He invites any of his friends passing through Wichita to stop in and see him so that he can show them some of the advantages of living in Wichita. Perhaps George is also an active member of the local Chamber of Commerce.

Port Authority Approves Traffic Relief Projects

To provide the earliest possible relief from the traffic congestion caused by a heavy increase in motorists in the George Washington Bridge area, the commissioners of the Port of New York Authority recently authorized an agreement with the Triborough Bridge and Tunnel Authority for construction of a $910,000 first stage development in a comprehensive new connection between the George Washington Bridge and the West Side Parkway, to be paid for on a fifty-fifty basis by the two agencies. Construction on this roadway will be commenced by the Port Authority late this year.

The other traffic relief projects for which funds are required by the Authority during 1950 are the Lincoln Tunnel ramp to the Port Authority Bus Terminal, the West 179th Street Tunnel approach to the George Washington Bridge, and the Holland Tunnel Exit Viaduct in Jersey City, all of which are now under construction.

DE YOUNG

(Continued from page 368)

Arthur Blanchard put in a word for him with the Board of Regents of the University of Michigan and Skinny was awarded a Master's Degree in Engineering in 1925. Roger Morrison then got him a job in Michigan and later in New York.

Here Fate took a hand and allowed Hawley Simpson to again cross his path. Hawley was Traffic Engineer for Essex County, New Jersey. When Skinny learned that the taxpayers actually paid Simpson money for doing this job he decided to return to the traffic profession for life. Simpson succeeded in getting Automatic Signal Corporation to try him out as a helper. This trial has lasted for twenty-one years. It looks as though a firm connection will probably take place before "Social Security" takes over.

Several events in those years are possibly worthy of notice. Skinny was left to guard Guy Kelcey's Applejack in Pittsburgh when ITE was formed.

In 1931 Michigan State called him back to East Lansing and made him rent a funny hat. In return, they gave him a C.E. degree. In 1933, the Midwest Section of ITE felt the need for more recreation and the "F and F Club" was born. In this technical association Skinny guarded the fishing tackle and nothing was lost so he was made traveling secretary. He continued in this connection for many years until the members decided to do nothing but fish and insisted on indoor plumbing.

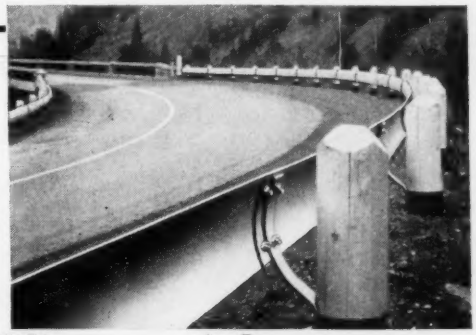
Mention could be made of Skinny's hobbies—his Goat Ranch in the San Fernando Valley was famous for its "Tinkling Bells" cocktails—now, his rooming house in Westwood has still to discover a paying guest. However, he isn't worried because of his proximity to the Veteran's Hospital and a very short haul to the Veteran's Cemetery.

Readers interested in vital statistics will want to know that Skinny was married in 1922 and has two sons, Pat and Mike, both in college. After their long exposure to the engineering profession through their father, they both chose different careers.

His wife states that now, after celebrating his 28th wedding anniversary recently (Grant and Florence Mickle were there to help celebrate), even though she finds he hasn't fulfilled all of his "campaign" promises he made before they were married, he's still a pretty nice guy and wears well, even for 28 years.

Exceeds all state safety specifications

TUTHILL HYWAY GUARD



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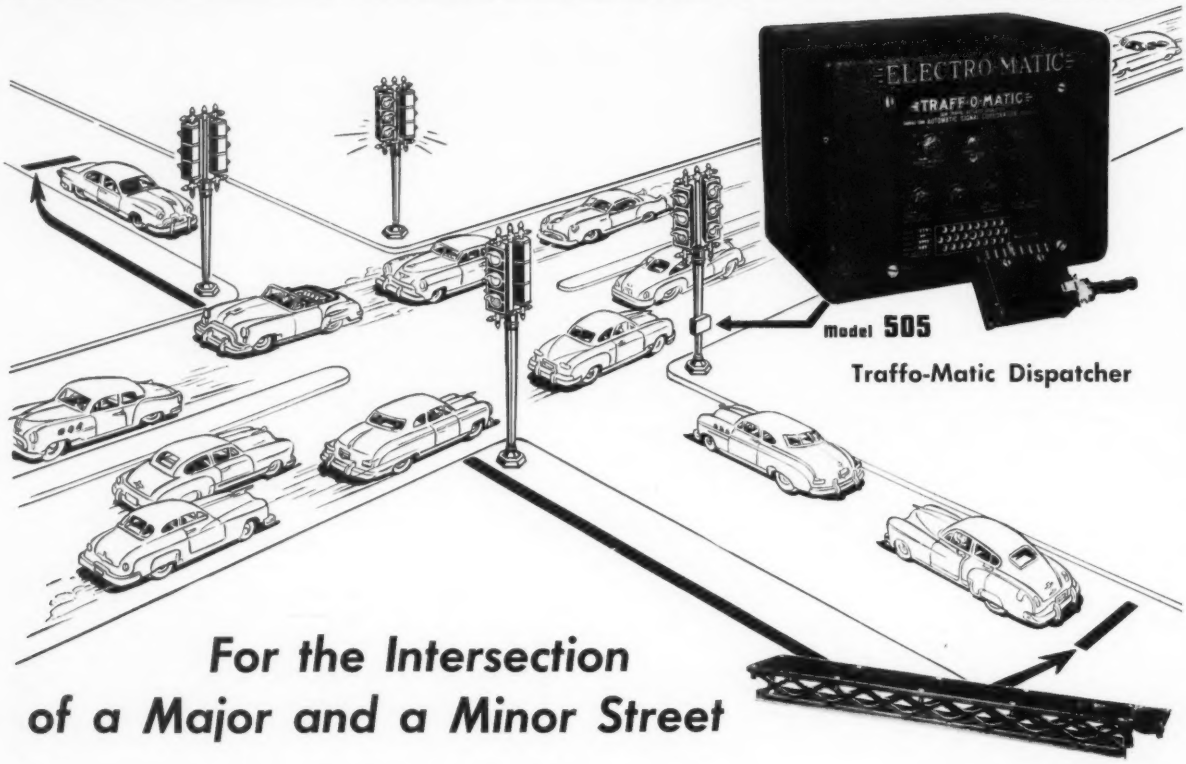

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For the Intersection of a Major and a Minor Street

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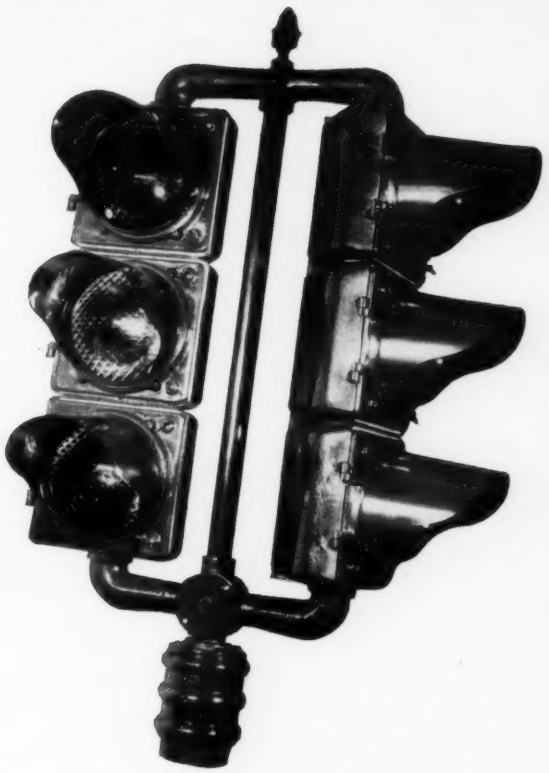

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N. J. Turnpike Law Includes Provision For Protection of Roadside

A 1950 revision of the New Jersey Turnpike Authority Act of 1948 carries over a clause included in the original act implementing a provision of the revised constitution adopted by the State in 1947. The section of the toll road act referred to, (Section 5, Subsection (j), Public Law 1948, chapter 454) provides that the turnpike authority may acquire by purchase or otherwise "any fee simple absolute in, easements upon, or the benefit of restrictions upon, abutting property to preserve and protect turnpike projects." This is apparently the first instance in which the constitutional provision (Article IV, Section 6, Subsection 3, cited in Highway Research Correlation Service Memorandum No. 15, December 1949) has been made available for use by statutory enactment. Its value, as a means of securing adequate protection for the public highways in the State seems indisputable.

Highway Research Correlation Service Circular No. 104

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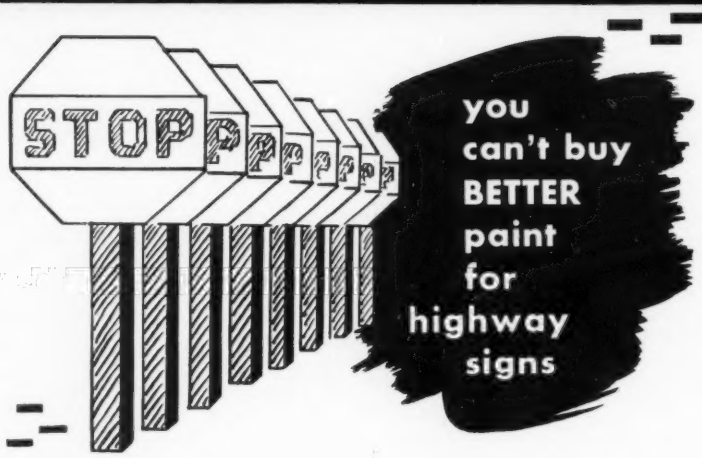

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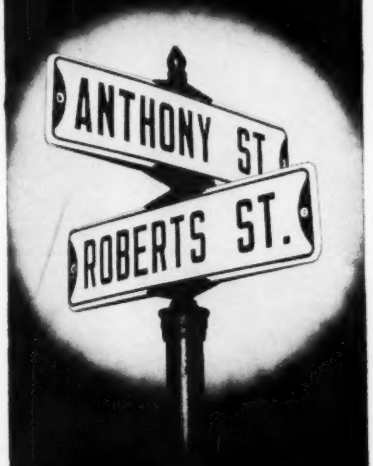

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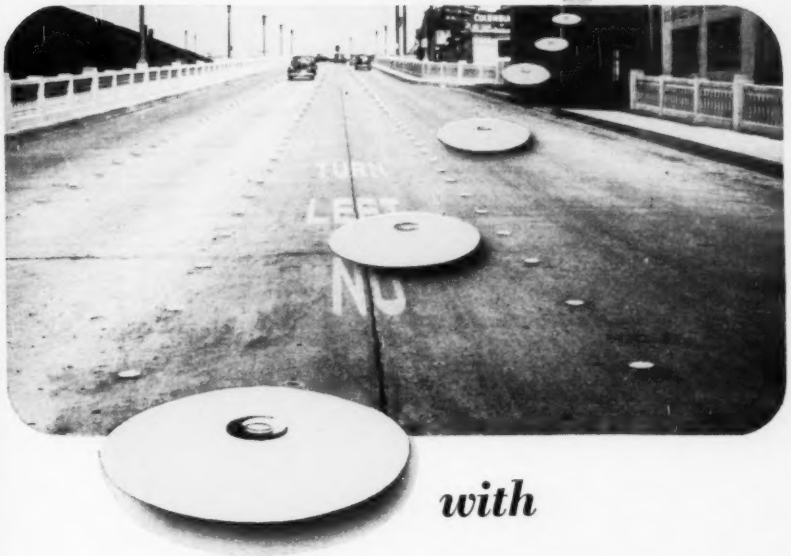

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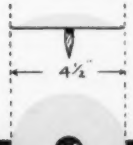

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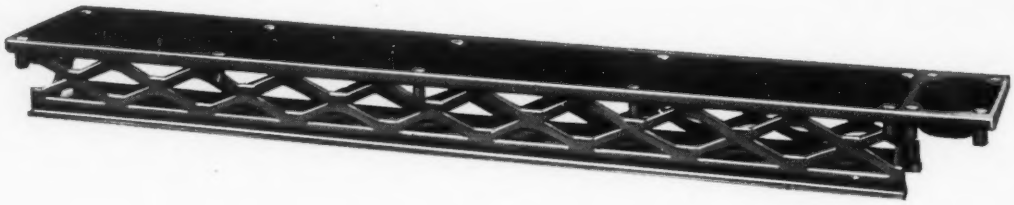
PRESSURE-SENSITIVE VEHICLE DETECTORS



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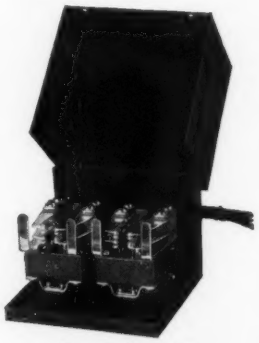

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